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SESSIONAL PAPERS

VOLUME 11

FIRST SESSION OF THE TENTH PARLIAMENT

OF THE

DOMINION OF CANADA

SESSION 1905

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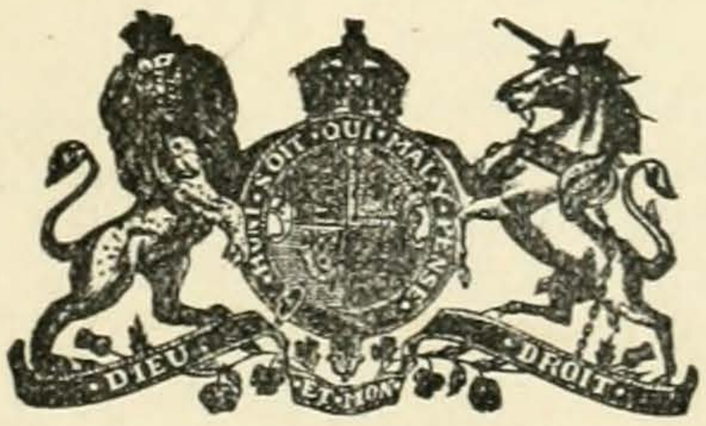

VOLUME XXXIX

☞See also Numerical List, page 5.

ALPHABETICAL INDEX

OF THE

SESSIONAL PAPERS

OF THE

PARLIAMENT OF CANADA

FIRST SESSION, TENTH PARLIAMENT, 1905.

A

Adulteration of Food 14
Agriculture, Annual Report 15
Agriculture Committee 100
Alberta Postal Business 73
Aliens, Employment of 36*c*
Aluminum 86
Anthracite Coal 113
Arbitration–Intercolonial *vs.* G.T.R. 50
Archives, Canadian 18
Auditor General, Annual Report 1
Autonomy in North-west 53

B

Bait Freezers 108
Banks, Chartered 6
Banks, Unpaid Balances in 7
Benrier, J. P. 58*d*
Blair, Hon. A. G. 54
Bonds and Securities 45
Branch Royal Mint 125
British Canadian Loan and Investment Co. 84

C

Cables of the Empire 88
Canada-Cape Breton Accident 65, 65*a*
Canada Eastern Railway 101
Canadian Cattle 56
Canadian Loan and Investment Co 84
Canadian Pacific Railway :—
  Business with Interior Department 51
  Lands sold by 52
Caplin and Paspebiac Railway 124
Chartered Banks 6
Chateau-Richer 63
Civil Service :—
  Appointments and Promotions 69, 132
  Examiners 31
  Insurance 42
  List 30
  Superannuations 39

C

Commercial Agents 77, 77*a*
Coombs, Henry F 145
Criminal Statistics 17
Customs Tariff Amendment 67

D

Dividends unpaid in Banks 7
Dominion Coal Co 142
Dominion Lands 48, 49, 131
Dominion Police 44
Dorchester Election 68
Drummond Counties Railway 120
Dumping Clauses 67

E

Election Forms 59
Election of 1904 37
Electric Light, Inspection of 13
Emigration to Canada 139
Esquimalt Defences 128
Estimates ..... 3 to 5*a*
Exchequer Court 106
Experimental Farms 16
Exports to United States 114

F

Federal District 96
Fisheries, Annual Report 22
Fishing Bounty 46, 105
Fort William Harbour 119
Fort William Telephone System 104
Fruit Marks Act 87

G

Gas, Inspection of 13
General Election, 1904 37
Geographic Board 21*a*
Geological Survey Report 26
Georgian Bay Islands 141

G

Graham, W. M., Report of..... 140
Grain Survey Boards..... 123
Grand Trunk Pacific Railway :—
Commissioners and Staff..... 62
Construction Commission..... 62*a*
Employment of Aliens..... 36*a*
Interior Report, Transcontinental Commissioners..... 62*c*
Liability incurred by Canada..... 111
Grazing Leases, N.W.T..... 143
Greene, George S..... 90*a*

H

Halifax and Esquimalt Defences..... 128
Halifax Fishery Award..... 109, 109*a*
Harbour Buoys..... 82
Harbour Commissioners..... 23
Homesteads, North-west Territories..... 131
Hudson's Bay Exploration..... 146

I

Imports from United States..... 114
Indenture, Dominion Coal Co..... 142
Indian Affairs, Annual Report..... 27
Inland Revenue, Annual Report..... 12
Insurance, Abstract..... 9
Insurance, Annual Report..... 8
Intercolonial Railway :—
Arbitration with G.T.R..... 50
Box and Flat Cars..... 74
Compensation Claims..... 79
Odbur White..... 58
Transport of Hay..... 76, 76*a*
Interior, Annual Report..... 25
Isle Bizard..... 92, 115
Italian Immigration..... 36*b*

J

Joliette Railway Survey..... 62*b*
Justice, Annual Report..... 34

K

Kaministiquia River..... 119
King's Regulations for Militia..... 43

L

Labour, Department of, Annual Report..... 36
Lands in North-west..... 66, 66*a*
Lands in Provisional Districts..... 80
Lawson, Henry Curtis..... 58*e*
Library of Parliament, Annual Report..... 33
Lighthouses..... 137
Lot 4438-A., Quebec..... 144
Lyall, P. & Sons..... 90

M

Macdonald Voters' Lists..... 112*a*
Manitoba Boundaries..... 102
Marine and Fisheries, Contracts..... 95
Marine and Fisheries—Lighthouses..... 137
Marine, Annual Report..... 21
Marquette Voters' Lists..... 112*b*
Matheson, Mr., Report of..... 105
Measures, Inspection of..... 13
Medal, South African War..... 129
Memorandum of Militia Council..... 130
Meteorological Service..... 71
Militia and Defence, Annual Report..... 35
Militia Regulations..... 43
Mint in Canada..... 125
Montreal Harbour Sheds..... 83, 90, 90*a*
Montreal Turnpike Trust..... 91
Moodie, Superintendent J. D..... 138
Mounted Police..... 28
Mutual Reserve Fund Life Association..... 127, 127*a*

N

North Atlantic Trading Co..... 139
North-west Territories :—
Autonomy..... 53
Grazing Leases..... 143
Lands..... 66, 66*a*
Mounted Police..... 28
Provisional Districts..... 97
School Lands..... 135
School Ordinances..... 98
Voters' Lists..... 112
Water Rights..... 117

O

Ottawa, Federal District..... 96
Over-rulings of Treasury Board..... 38

P

Paris Exhibition..... 145
Patent Medicines..... 85
Penitentiaries, Annual Report..... 34
Père Marquette Railroad..... 36*c*, 36*d*
Police, Dominion..... 44
Police, North-west Mounted..... 28
Port Arthur Harbour..... 119
Port Arthur Telephone System..... 104
Postmaster General, Annual Report..... 24
Pound Net Licenses..... 110
Prince Edward Island :—
Additional Subsidy..... 134
Branch Railway Lines..... 136
Charlottetown Station..... 103
Grand View Station..... 118
Railway..... 79
Rules of Supreme Court..... 61
Village Green..... 125
Winter Communication..... 89, 116
Provincial Subsidies..... 99

P

Public Accounts, Annual Report..... 2
Public Buildings..... 121
Public Printing and Stationery..... 32
Public Works, Annual Report..... 19

Q

Quebec, Lot 4438-A..... 144

R

Railway Accidents..... 75
Railway Commission..... 57, 57*a*, 62*b*
Railways and Canals, Annual Report..... 20
Rebellion of 1885..... 47
Revenue in North-west Territories..... 60
Ritchie, James..... 58*b*
Royal Mint..... 125

S

Secretary of State, Annual Report..... 29
School Lands in North-west..... 135
Shareholders in Chartered Banks..... 6
Shelburne Postmaster..... 58*a*
Shipping, List of..... 21*b*
Shakin, Ivan..... 107
Sorel Shipyard..... 70
South African War Medal..... 129
Steamboat Accidents..... 75
Ste. Geneviève..... 92
Submarine Signal Co., Boston..... 72
Subsidies to Provinces..... 99
Subsidies to Railways and Canals..... 111
Surveyor General, Report of..... 25*a*

T

Telephone System..... 104
Thermograph Records..... 93 to 93*b*
Thessalon Post Office..... 122
Trade and Commerce, Annual Report..... 10
Trade and Navigation, Annual Report..... 11
Transcontinental Railway, *see* G.T.P.R.
Treasury Board Over-rulings..... 38

U

Unclaimed Balances in Banks..... 7
Unforeseen Expenses..... 40
United States, Imports and Exports..... 114

V

Vegetables from United States..... 55
Verdun, Floods at..... 81
Vessels, List of..... 21*b*
Voters' Lists..... 78, 112 to 112*b*

W

Weights, Measures, etc..... 13
Welland Canal..... 94

Y

Yukon :—
Orders in Council..... 147
Ordinances..... 41
Telegrams in *re* Election..... 64

See also Alphabetical Index, page 1.

LIST OF SESSIONAL PAPERS

Arranged in Numerical Order, with their titles at full length; the Dates when Ordered and when presented to the Houses of Parliament; the Name of the Senator or Member who moved for each Sessional Paper, and whether it is ordered to be Printed or Not Printed.

Volume II. Fourth Census of Canada, 1901. Natural Products. Presented 16th January, 1905, by Hon. S. A. Fisher.....*See Vol. B., Sessional Papers of 1904.*

CONTENTS OF VOLUME 1.

(This volume is bound in two parts.)

1. Report of the Auditor General, for the fiscal year ended 30th June, 1904. Partial report presented 23rd January and 30th January, 1905, by Sir Wilfrid Laurier; also on 20th February, by Hon. S. A. Fisher.....*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 2.

2. Public Accounts of Canada, for the fiscal year ended 30th June, 1904. Presented 16th January, 1905, by Hon. W. Paterson.....*Printed for both distribution and sessional papers.*

3. Estimates of the sums required for the services of Canada, for the year ended 30th June, 1906. Presented 18th January 1905, by Sir Wilfrid Laurier..*Printed for both distribution and sessional papers.*

4. Supplementary Estimates for the year ending 30th June, 1905. Presented 17th May, 1905, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

4*a*. Further Supplementary Estimates for the year ending 30th June, 1905. Presented 4th July, 1905, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

5. Supplementary Estimates for the year ending 30th June, 1906. Presented 4th July, 1905, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

5*a*. Further Supplementary Estimates for the year ending 30th June, 1906. Presented 12th July, 1905, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

6. List of Shareholders in the Chartered Banks of Canada, as on 31st December, 1904. Presented 12th April, 1905, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 3.

7. Report of dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of Canada, for five years and upwards, prior to December 31, 1904. Presented 9th June, 1905, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

8. Report of the Superintendent of Insurance, for the year ended 31st December, 1904.
Printed for both distribution and sessional papers.

9. Abstract of Statements of Insurance Companies in Canada, for the year ended 31st December, 1904. Presented 17th April, 1905, by Hon. W. S. Fielding.
Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 4.

10. Report of the Department of Trade and Commerce, for the fiscal year ended 30th June, 1904. Presented 31st January, 1905, by Hon. W. Paterson. . . *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 5.

11. Tables of the Trade and Navigation of Canada, for the fiscal year ended 30th June, 1904. Presented 16th January, 1905, by Hon. W. Paterson. . . . . *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 6.

12. Inland Revenues of Canada. Excise, etc., for the fiscal year ended 30th June, 1904. Presented 16th January, 1905, by Hon. L. P. Brodeur. . . . . *Printed for both distribution and sessional papers.*

13. Inspection of Weights, Measures, Gas and Electric Light, for the fiscal year ended 30th June, 1904. Presented 16th January, 1905, by Hon. L. P. Brodeur.

Printed for both distribution and sessional papers.

14. Report on Adulteration of Food, for the fiscal year ended 30th June, 1904. Presented 7th April, 1905, by Hon. L. P. Brodeur. . . . . *Printed for both distribution and sessional papers.*

15. Report of the Minister of Agriculture, for the year ended 31st October, 1904. Presented 31st January, 1905, by Hon. S. A. Fisher. . . . . *Printed for both distribution and sessional papers.*

16. Report of the Director and Officers of the Experimental Farms, for the year 1904. Presented 11th May, 1905, by Hon. S. A. Fisher. . . . . *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 7.

17. Criminal Statistics for the year ended 30th September, 1904.

Printed for both distribution and sessional papers.

18. Report on Canadian Archives, 1904. Presented 31st May, 1905, by Hon. S. A. Fisher.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 8.

19. Report of the Minister of Public Works, for the fiscal year ended 30th June, 1904. Presented 9th February, 1905, by Hon. C. S. Hyman. . . . . *Printed for both distribution and sessional papers.*

20. Annual Report of the Department of Railways and Canals, for the fiscal year ended 30th June, 1904. Presented 13th February, 1905, by Hon. H. R. Emmerson.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 9.

21. Report of the Department of Marine and Fisheries (Marine), for the fiscal year ended 30th June, 1904. Presented 23rd January, 1905, by Sir Wilfrid Laurier.

Printed for both distribution and sessional papers.

21*a*. Fifth Annual Report of the Geographic Board of Canada, containing all decisions to 30th June, 1904, Presented 7th February, 1905, by Sir Wilfrid Laurier.

Printed for both distribution and sessional papers.

21*b*. List of Shipping issued by the Department of Marine and Fisheries, being a list of vessels on the registry books of Canada, on the 31st December, 1904. Presented 5th June, 1905, by Hon. J. R. F. Préfontaine. . . . . *Printed for both distribution and sessional papers.*

22. Report of the Department of Marine and Fisheries (Fisheries), for the fiscal year ended 30th June, 1904. Presented 16th March, 1905, by Hon. J. R. F. Préfontaine.

Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 10.

23. Report of the Harbour Commissioners, etc., 1904. . . *Printed for both distribution and sessional papers.*

24. Report of the Postmaster General, for the year ended 30th June, 1904. Presented 17th January, 1905, by Sir Wilfrid Laurier. . . . . *Printed for both distribution and sessional papers.*

25. Annual Report of the Department of the Interior, for the fiscal year ended 30th June, 1904. Presented 2nd February, 1905, by Sir Wilfrid Laurier. . . . *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 11.

25*a*. Report of the Surveyor General of Dominion Lands for the year ending 30th June 1904.
Printed for both distribution and sessional papers.

26. Summary Report of the Geological Survey Department for the calendar year 1904.
Printed for both distribution and sessional papers.

27. Annual Report of the Department of Indian Affairs, for the fiscal year ended 30th June 1904. Presented 23rd January, 1905, by Sir Wilfrid Laurier. . *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 12.

28. Report of the Royal North-West Mounted Police, 1904. Presented 21st March, 1905, by Sir Wilfrid Laurier..... *Printed for both distribution and sessional papers.*

29. Report of the Secretary of State of Canada, for the year ended 31st December, 1904. Presented 4th May, 1905, by Sir Wilfrid Laurier..... *Printed for both distribution and sessional papers.*

30. Civil Service List of Canada, 1904. Presented 16th January, 1905, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

31. Report of the Board of Civil Service Examiners, for the year ended 31st December, 1904. Presented 4th May, 1905, by Sir Wilfrid Laurier..... *Printed for both distribution and sessional papers.*

32. Annual Report of the Department of Public Printing and Stationery, for the year ended 30th June, 1904. Presented 19th April, 1905, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

33. Report of the Joint Librarians of Parliament for the year 1904. Presented 12th January, 1905, by the Hon. The Speaker..... *Printed for sessional papers.*

34. Report of the Minister of Justice as to Penitentiaries of Canada, for the year ended 30th June, 1904. Presented 30th January, 1905, by Hon. C. Fitzpatrick.
Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 13.

35. Report of the Department of Militia and Defence of Canada, for the year ended 31st December, 1904. Presented 14th April, 1905, by Sir Frederick Borden.
Printed for both distribution and sessional papers.

36. Report of the Department of Labour, for the year ended 30th June, 1904. Presented 17th January, 1905, by Sir Wilfrid Laurier ..... *Printed for both distribution and sessional papers.*

36*a*. Report of the commissioner and other documents, in the matter of the royal commission to inquire into the alleged employment of aliens in connection with the surveys of the proposed Grand Trunk Pacific Railway. Presented 1st March, 1905, by Sir William Mulock.
Printed for both distribution and sessional papers.

36*b*. The royal commission appointed to inquire into the immigration of Italian labourers to Montreal, and the alleged fraudulent practices of employment agencies.—Report of the commissioner and evidence. Presented 19th May, 1905, by Sir William Mulock.
Printed for both distribution and sessional papers.

36*c*. Report of the commissioner on the investigation into the alleged employment of aliens by the Père Marquette Railroad Company. Presented 19th May, 1905, by Sir William Mulock.
Printed for both distribution and sessional papers.

36*d*. Minutes of Evidence, Père Marquette Railroad.... *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 14.

37. Return of the Tenth General Election for the House of Commons of Canada, held on the 27th day of October, 1904, and the 3rd day of November, 1904, followed by a Return of the By-elections held during the Ninth Parliament. Presented 23rd June, 1905, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

38. Return of over-rulings by the Treasury Board of the Auditor General's decisions between the sessions of 1904 and 1905. Presented 16th January, 1905, by Hon. W. Paterson ..... *Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

39. Statement of superannuations and retiring allowances in the civil service during the year ended 31st December, 1904, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired, and also whether vacancy filled by promotion or by new appointment, and salary of any new appointee. Presented 16th January, 1905, by Hon. W. Paterson. *Not printed.*

40. Return showing the expenditure on account of unforeseen expenses from the 1st July, 1904, to the 11th January, 1905, in accordance with the Appropriation Act of 1904. Presented 16th January, 1905, by Hon. W. Paterson..... *Not printed.*

41. Ordinances of the Yukon Territory for the year 1904. Presented 17th January, 1905, by Sir Wilfrid Laurier..... *Not printed.*

42. Statement in pursuance of section 17 of the Civil Service Insurance Act, for the year ending 30th June, 1904. Presented 17th January, 1905, by Hon. W. Paterson..... *Not printed.*

43. The King's Regulations aud Orders for the Militia of the Dominion of Canada. Presented 17th January, 1905, by Sir Wilfrid Laurier..... *Not printed.*

44. Report of the Commissioner, Dominion Police Force, for the year 1904. Presented 17th January, 1905, by Hon. C. Fitzpatrick..... *Not printed.*

45. Detailed statement of all bonds and securities registered in the Department of the Secretary of State of Canada, since last Return, 23rd March, 1904, submitted to the Parliament of Canada under section 23, chapter 19 of the Revised Statutes of Canada. Presented 24th January, 1905, by Sir Wilfrid Laurier..... *Not printed.*

46. Statement of fishing bounty expenditure for the year 1903-04. Presented 24th January, 1905, by Sir Wilfrid Laurier..... *Not printed.*

47. Return to an address of the House of Commons, dated 9th May, 1904, showing all papers, letters, petitions and resolutions in reference to payments of claims for losses arising out of the rebellion of 1885, in the North-west Territories. Presented 25th January, 1905.—*Mr. Davis*..... *Not printed.*

48. Return of orders in council which have been published in the *Canada Gazette* and in the *British Columbia Gazette*, between 1st January and 31st December, 1904, in accordance with the provisions of subsection *(d)* of section 38 of the regulations for the survey, administration, disposal and management of Dominion lands within the 40-mile railway belt in the province of British Columbia. Presented 27th January, 1905, by Sir Wilfrid Laurier..... *Not printed.*

49. Return of orders in council which have been published in the *Canada Gazette* between 1st January and 17th December, 1904, in accordance with the provisions of clause 91 of the Dominion Lands Act, chapter 54 of the Revised Statutes of Canada, and its amendments. Presented 27th January, 1905, by Sir Wilfrid Laurier..... *Not printed.*

50. Papers in relation to the Arbitration: Intercolonial Railway *vs.* Grand Trunk Railway Company. Presented 31st January, 1905, by Hon. C. Fitzpatrick..... *Not printed.*

51. Return (in so far as the Department of the Interior is concerned) of copies of all orders in council, plans, papers and correspondence which are required to be presented to the House of Commons, under a resolution passed on 20th February, 1882, since the date of the last return under such resolution. Presented 31st January, 1905, by Sir Wilfrid Laurier..... *Not printed.*

52. Return of all lands sold by the Canadian Pacific Railway Company, from the 1st October, 1903, to the 1st October, 1904. Presented 1st February, 1905, by Sir Wilfrid Laurier..... *Not printed.*

53. Return to an address of the House of Commons, dated 6th February, 1905, for copies of all correspondence between the goverment of Canada, or any member thereof, and the government of the North-west Territories, or any of its members, in reference to the granting of provincial autonomy to the said territories, since the date of the last prorogation of parliament. Presented 8th February, 1905.—*Mr. Monk*..... *Printed for sessional papers.*

54. Return to an address of the House of Commons, dated 6th February, 1905, for a copy of the letter of resignation of the Honourable A. G. Blair, as Chairman of the Board of Railway Commissioners, and of all correspondence in reference to the said resignation. Presented 9th February, 1905. – *Mr. Monk*..... *Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

55. Return to an order of the House of Commons, dated 30th January, 1905, showing the value of vegetables imported from the United States, and entered at the ports of Montreal and Toronto, during the fiscal year ending the 30th of June, 1904; giving separately the values for the first and the last six months of said year. Also a statement showing the value of canned, preserved or dried vegetables entered at said ports for said fiscal year; and the amounts of duties collected at both ports in the above cases. Presented 9th February, 1905.—*Mr. Monk*.....*Not printed.*

56. Report of the Committee of the Honourable Privy Council of the 18th January, 1905, relative to the embargo on Canadian cattle. Presented 10th February, 1905, by Hon. S. A. Fisher.
Printed for sessional papers.

57. Return to an order of the House of Commons, dated 1st February, 1905, giving the names of all officials, clerks and employees on the pay-roll of the Board of Railway Commissioners for Canada, on the first of January, 1905, with the amount of salary in each case. Presented 13th February, 1905.—*Mr. Perley*.....*Printed for sessional papers.*

57*a*. Report of the Board of Railway Commissioners for Canada: Part I. Report of proceedings of Board, February 1st to June 30th, 1905. Part II. Report of proceedings of Board, July 1st to December 31st, 1904. Presented 22nd May, 1905, by Hon. H. R. Emmerson.....*Not printed.*

58. Return to an order of the House of Commons, dated 26th January, 1905, for copies of the letters of Mr. Tiffen, general traffic manager, and J. E. Price, general superintendent, of the Intercolonial Railway, reporting Odbur White, station agent at Frederiction, N.B., as not qualified for his position; and of all other correspondence in the possession of the Government or the department of railways and canals, relating to the dismissal of said Odbur White. Presented 13th February, 1905.—*Mr. Crocket*.....*Not printed.*

58*a*. Return to an order of the House of Commons, dated 6th February, 1905, for copies of all correspondence, between the government or any minister, and any party or parties, concerning the dismissal of the postmaster at Shelburne, Ontario, on or about the 7th of March, 1903. Presented 28th February, 1905.—*Mr. Barr*.....*Not printed.*

58*b*. Return to an order of the House of Commons, dated 20th March, 1905, for copies of all correspondence had with the minister of railways and canals, or any officer in his department, in reference to the dismissal of James Ritchie, inspector of masonry on the Trent Valley Canal, Gamebridge, and the appointment of his successor. Presented 5th April, 1905.—*Mr. Foster*.....*Not printed.*

58*c*. Return to an order of the House of Commons, dated 20th February, 1905, for copies of all correspondence, papers, letters, recommendations, reports petitions, &c., in possession of the government or any member or official thereof, relating to the dismissal of Henry Curtis Lawson, as postmaster at Stanhope, Prince Edward Island, and the appointment of his successor. Presented 1st May, 1905. *Mr. Martin (Queen's)*.....*Not printed.*

58*d*. Return to an order of the House of Commons dated 20th February, 1905, for copies of correspondence between the government, or any minister, and any party or parties, concerning the dismissal of the postmaster at St. Claude, Manitoba, Mr. J. P. Benrier, on or about the 1st day of November, 1904. Presented 28th June, 1905.—*Mr. Staples*.....*Not printed.*

59. Return to an order of the House of Commons dated 8th February, 1905, for copies of all forms and instructions issued to the returning officers in the several provinces and territories for use in the recent general election for the house of commons. Presented 15th February, 1905.—*Mr. Barker.*
Not printed.

60. Return to an order of the House of Commons, dated 6th February, 1905, showing the amount of revenue collected, (1) by the department of inland revenue; (2) by the department of customs, during each of the past ten years; and also in the aggregate during the same period, at the following points in the North-west Territories, viz.: Edmonton, Strathcona, Red Deer, Calgary, Medicine Hat, Maple Creek, Lethbridge, Coutts, Cardston and Macleod Presented 15th February, 1905.—*Mr. Roche (Marquette)*.....*Not printed.*

61. Copy of the rules made by the supreme court of judicature of the province of Prince Edward Island, pursuant to section 533 of the Criminal Code, 1892. Presented 16th February, 1905, by the Hon. The Speaker.....*Not printed.*

62. Return to an order of the House of Commons, dated 13th February, 1905, showing the respective dates of appointments of the commissioners and working staff of the Grand Trunk Pacific Railway Commission; and the total amount expended thereon to December 31, 1904, under the heads, (*a*) salaries of commissioners; (*b*) salaries of staff; (*c*) expenses; (*d*) rental of quarters. Presented 17th February, 1905.—*Mr. Foster*.....*Printed for sessional papers.*

CONTENTS OF VOLUME 14—*Continued.*

62*a*. Return to an order of the House of Commons, dated 27th February, 1905, showing the total number of officers, civil engineers and other employees now engaged in the surveys of the Transcontinental Railway, and works connected therewith, under the Transcontinental Railway Construction Commission ; the name and place of residence of each of the above persons at the time of his appointment ; and the functions and salaries of each of the above. Presented 9th March, 1905.—*Mr. Gervais*.....*Printed for sessional papers.*

62*b*. Return to an order of the House of Commons, dated 6th March, 1905. for a statement showing : 1. The names of the civil engineers and others, who were employed by the railway commission to make a survey for a line of railway in the county of Joliette in Quebec province, during the months of October and November, 1904. 2. The salary paid to each of said engineers and assistants for the work already performed in the said county of Joliette. 3. The number of days during which each of said engineers and assistants was employed. 4. A copy of instructions given to said engineers ; also a copy of report with plan or other detailed information which said engineers have made. 5. A statement showing the expenses (other than salary or salaries) entailed for the completion of said work and survey thus made in the said county of Joliette. Presented 23rd March, 1905.—*Mr. Monk.*
Not printed.

62*c*. Interim report of the Commissioners of the Transcontinental Railway. Presented 22nd May, 1905, by Hon. H. R. Emmerson.....*Printed for both distribution and sessional papers.*

63. Return to an order of the House of Commons, dated 23rd January, 1905, for a statement showing the amount of money spent by the government, or any department thereof, in the parish of Chateau-Richer, county of Montmorency, for building wharfs, piers, docks, breakwaters, etc., or for removing boulders or rocks from the beach in front of said parish, or for any other public works, from the 1st of September, 1904, to the 15th of November of the same year. Presented 17th February, 1905.—*Mr. Morin*.....*Not printed.*

64. Copies of telegrams in connection with the late election in the Yukon Territory. Presented 17th February, 1905, by Sir Wilfrid Laurier.....*Not printed.*

65. Return to an order of the House of Commons, dated 1st February, 1905, for copies of all correspondence, telegrams, etc., which passed between the minister of marine and fisheries, or the deputy minister of marine and fisheries, or any other official of the said department, and Captain R. Salmon, former wreck commissioner, in the matter of the *Canada-Cape Breton* investigation and the resignation of Captain Salmon from his position as wreck commissioner. Presented 20th February, 1905.—*Mr. Ames*.....*Not printed.*

65*a*. Return to an order of the House of Commons, dated 6th March, 1905, of the "statement of the case" in the *Canada-Cape Breton* accident, as served by Captain Reid, of Montreal, upon witnesses whose certificates or license was liable to be dealt with in connection with investigation regarding said casualty. Presented 4th April, 1905.—*Mr. Ames*.....*Not printed.*

66. Return to an order of the House of Commons, dated 6th February, 1905, showing the total number of acres of public lands undisposed of in the several and respective provisional districts of the North-west Territories of Canada. Presented 22nd February, 1905.—*Mr. McCarthy (Calgary).*
Printed for sessional papers.

66*a*. Return to an address of the House of Commons, dated 25th January, 1905, for copies of all orders in council, reports of the minister, recommending and authorizing the sale of Government lands in the North-west Territories during the years 1903 and 1904. Also a return of the lands sold, if any ; the rates and terms at which they were sold, and the persons to whom they were sold. Presented 9th March, 1905.—*Mr. Foster*.....*Not printed.*

67. Return to an address of the House of Commons, dated 8th February, 1905, for copies of all circulars or instructions, regulations and rulings made by the customs department together with any orders in council, relating to section 19 and subsections thereto of the Act to amend the Customs Tariff, 1897, assented to August 10th, 1904, commonly known as the "dumping clauses." Presented 23rd February, 1905.—*Mr. Kemp*.....*Not printed.*

68. Return to an order of the House of Commons, dated 13th February, 1905, for copies of all correspondence had with the government or any member thereof, or any official under the government, relative to the appointment of returning officers for the county of Dorchester, Quebec, for the general election of 1904, and relative to the resignation of any one so appointed. Presented 23rd February, 1905.—*Mr. Morin*.....*Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

69. Return of the names and salaries of all persons appointed to or promoted in the several departments of the civil service, during the calendar year 1904, Presented 23rd February, 1905, by Sir Wilfrid Laurier.....*Not printed.*

70. Return to an order of the House of Commons, dated 20th February 1905, showing the total amount expended in wages to men employed at the Sorel shipyard, from the 30th June, 1904, to the 1st February, 1905; indicating separately the amount so expended for each month. Also the total amount expended in purchases for the same shipyard during the same period. Presented 27th February, 1905.—*Mr. Monk*.....*Not printed.*

71. Return to an order of the House of Commons, dated 13th February, 1905, showing the names of all persons added to the pay-roll of the meteorological service, permanently or temporarily, since June 30, 1904, and the amount received by each to date. Presented 27th February, 1905.—*Mr. Monk*. *Not printed.*

72. Return to an order of the House of Commons, dated 13th February, 1905, for copies of all correspondence between the minister of marine and fisheries and the Submarine Signal Company, of Boston, U.S.A , including all contracts or agreements which may have been entered into between the afore said parties. Presented 27th February, 1905.—*Mr. Monk*.....*Not printed.*

73. Return to an order of the House of Commons, dated 6th February, 1905, showing a statement of the business done during each of the past ten years, and also in the aggregate during the same period, in connection with the transmission of mail matter; and with the issue and payment of money orders and postal notes at each post office in the provisional district of Alberta. Presented 28th February, 1905.—*Mr. Roche (Marquette)*.....*Not printed.*

74. Return to an order of the House of Commons, dated 9th February, 1905, showing the number of box and flat cars added to the equipment of the Intercolonial Railway for each year from 1900 to 1904, inclusive; the total number on January 1, 1900, and on January 1, 1904, respectively; and the number in use on roads off the Intercolonial Railway on January 1, 1900 and 1904 respectively. Presented 1st March, 1905.—*Mr. Foster*.....*Not printed.*

75. Return to an order of the House of Commons, dated 20th February, 1905, showing the number of railway and steamboat disasters in Canada in 1904. The number in which investigation for cause was made, such cause, and the cause given. The means, if any, employed by the proper authorities to prevent the recurrence of such accidents, wherever due to any preventable cause. The methods adopted in England where railway accidents are so rare, and any other information which may lead to the safeguarding of the lives and property of Canadians obliged to make use of these public facilities. Presented 1st March, 1905.—*Mr. Martin (Queen's)*.....*Not printed.*

76. Return to an order of the House of Commons, dated 30th January, 1905, for copies of all circulars or advices issued by the Intercolonial Railway governing the transport of hay, under the free transport order in council of 1904, and of all certificates signed by municipalities or individuals to whom hay was delivered thereunder. Presented 1st March, 1905.—*Mr. Foster*.....*Not printed.*

76*a*. Return to an address of the House of Commons, dated 25th January, 1905, for copies of all correspondence had with the government or any member thereof, or with any official of the Intercolonial Railway, in reference to the transport of hay during the year 1904, from points in Ontario and Quebec to points along the Intercolonial Railway, including the railway in Prince Edward Island, Also the report of the minister to council and the order in council, if any was passed, recommending or authorizing a rebate or reduction in the rates for carrying the same. And the names of the parties to whom rebates or reductions in the rate of freight upon hay were made, and the quantities shipped to each. Presented 31st March, 1905.—*Mr. Foster*.....*Printed for distribution.*

77. Partial return to an order of the House of Commons, dated 1st February, 1905, showing the names of all the commercial agents of Canada; where located; previous location, occupation and qualifications; amount of salary of each; other expenses connected with their positions; class of product they are chiefly interested in placing on the market; procedure in the different locations; results, specific and general. Presented 1st March, 1905.—*Mr. Martin (Queen's)*.

Printed for sessional papers.

77*a*. Supplementary return to No. 77. Presented 28th April, 1905.....*Printed for sessional papers.*

78. Return to an address of the House of Commons, dated 20th February, 1905, for a copy of all correspondence relating to the order in council of 25th August, 1904, providing for the preparation of voters' lists in the unorganized territories of Ontario, together with a copy of such order in council, and

CONTENTS OF VOLUME 14—*Continued.*

all correspondence relating to the voters' lists prepared under or pursuant to such order in council; and especially all correspondence between any of the ministers or their deputies or officers in any of the departments, and the following persons, namely: His Honour Edward O'Connor, Junior Judge of Algoma, W. A. Quibell, Police Magistrate, Sault Ste. Marie, W. H. Carney, Sheriff of Algoma, J. J. Kehoe, Clerk of the Peace of Algoma, Jacob Stevenson, Sault Ste. Marie, and all other persons, relating to the preparation or revision of such voters' lists. Also for copies of all instructions sent, issued or delivered to any of the said persons, or to any other persons, relative to the preparation or revision of such voters' lists, or any of them. Presented 1st March, 1905.—*Mr. Boyce*
Not printed.

79. Return to an order of the House of Commons, dated 1st February, 1905, showing: 1. The amount of money paid by the Intercolonial and Prince Edward Island Railways, between June 30th, 1904, and January 1st, 1905, arising out of claims for damages and refunds of all kinds; also compensations for injuries. 2. The nature and amount in each case. 3. The name of the person or persons, firm or corporation to whom the same was paid. 4. The dates in each case on which the claims for damages, refunds or compensations for injuries were filed. 5. The dates of payment of each. Presented 3rd March, 1905.—*Mr. Kemp*.....*Not printed.*

80. Return to an order of the House of Commons, dated 6th February, 1905, showing the acreage in each township in the provisional district of Alberta, and in those parts of the provisional districts of Saskatchewan and Assiniboia lying west of range 13, west of the third meridian in the Dominion lands system of survey, that has been disposed of in each of the following ways: *(a)* acreage patented, either as homesteads or on sales; *(b)* acreage not patented, but held under homestead entry or by purchase; and *(c)* acreage patented or reserved for railway land grants. Also the number of homestead entries made to date in the following land agencies: Edmonton, Red Deer, Calgary, Lethbridge, and so much of Battleford and Regina as lies west of range 13, west of the third meridian. Presented 3rd March, 1905.—*Mr. Roche (Marquette)*.....*Not printed.*

81. Return to an order of the House of Commons, dated 2nd February, 1905, for copies of correspondence exchanged between parties in the town of Verdun, county of Jacques Cartier, and the Montreal Harbour Board, or the department of marine and fisheries, respecting protection against floods at Verdun, along the shore of the St. Lawrence River. Presented 3rd March, 1905.—*Mr. Monk.*
Not printed.

82. Return to an order of the House of Commons, dated 13th February, 1905, showing all contracts which have since July 1st, 1903, been made or renewed by the department of marine and fisheries, with any person or company, for the placing, maintenance or care of harbour buoys; giving in each case the name of the approved contractor, the annual amount of his contract, and time of its expiry; and further indicating in what instances public tenders were not called for, and in what instances the lowest tenders were not accepted. Presented 3rd March, 1905.—*Mr. Ames*.....*Not printed.*

83. Return to an order of the House of Commons, dated 8th February, 1905, for copies of all correspondence exchanged since the 1st of October last between *(a)* P. W. St. George, Government Superintendent Engineer, Montreal Harbour sheds, and the Honourable Minister of Marine and Fisheries, and between *(b)* the Honourable Minister or the Deputy Minister of Marine and Fisheries and the Harbour Commissioners of Montreal, regarding the plans, specifications or contracts for the new sheds in the port of Montreal. Presented 3rd March, 1905.—*Mr. Ames*.....*Not printed.*

83*a*. Return to an address of the House of Commons, dated 25th January, 1905, for copies of all correspondence between the Board of Montreal Harbour Commissioners and the Department of Marine and Fisheries in regard to the erection of permanent sheds upon the wharfs in the harbour of Montreal and of the correspondence had between the Government and the Federation of Shippers; and engineers' reports in the possession of the government upon the same subject; also copies of correspondence between the Department of Marine and Fisheries and F. D. Monk, M.P., upon the same subject. Presented 7th March, 1905.—*Mr. Monk*.....*Not printed.*

84. Statement of the affairs of the British Canadian Loan and Investment Company, for the year ended 31st December, 1904. Presented (Senate) 14th February, 1905, by the Hon. The Speaker.*Not printed.*

85. Return to an address of the Senate, dated 5th August, 1904, showing the names of all liquid mixtures known as patent or proprietary medicines purporting to remove the most varied forms of disease occurring in the human body, and when weakened by such disease or by any indulgence, habit or accident, to restore it to its former strength and vigour. Showing also the amount of money, if any,

CONTENTS OF VOLUME 14—*Continued.*

paid by importer, maker, mixer or vendor, to the government as special tax or license, and to whom paid. Showing likewise if the government has any knowledge of the ingredients which are employed to make these compounds: 1. Has such knowledge been acquired from the statements of the parties who have the formula? 2. Has it been acquired by qualitative and quantitative analysis of the Dominion analyst, or by any other practical chemist, if so, what quantities are contained in a determinate, say, one fluid ounce, of the following named ingredients: 1. Water, quantity in a determinate measure, say, one fluid ounce, of the preparations examined. 2. Alcohol in any form other than absolute; methylated or proof spirit or any other form; essences, ethers or any other solvent; colouring or flavouring substances, and, lastly, the solid ingredients in said preparations, the quantity and names of each. Presented 28th February, 1905.—*Hon. Mr. Sullivan.*

Printed for sessional papers.

86. Return to an address of the Senate, dated 14th February, 1905, showing: Imports of aluminum in pigs or ingots into Canada. Imports of aluminum into wire, sheets or any other form. Imports of oxide of aluminum. Imports of alumina. Quantities by weight-values. Countries imported from, and ports of entry in Canada, and what countries the production of. Exports of aluminum in pigs or ingots. Exports of aluminum in any form, manufactured. What countries exported to, and ports of shipment in Canada. Quantities by weight-values. For the year 1904. Presented 28th February, 1905.—*Hon. Mr. Domville*..... *Not printed.*

87. Return to an order of the House of Commons, dated 9th February, 1905, showing the number of inspectors or other persons employed to attend to the enforcement of the Fruit Marks Act of 1901. The names of the said inspectors or other persons, and the salaries paid to each, respectively. The total amount paid to said persons on account of salaries up to the 1st of January, 1905. Also the amount paid to said persons for travelling and other expenses up to 1st January, 1905. Presented 9th March, 1905.—*Mr. Taylor*..... *Not printed.*

88. Return to an address of the House of Commons, dated 20th February, 1905, for copies of all correspondence addressed to the government, or any minister, in reference to the cables of the Empire. Presented 9th March, 1905.—*Mr. Logan*..... *Not printed.*

89. Return to an order of the House of Commons, dated 13th February, 1905, for copies of all correspondence in reference to the building of a new boat to be employed to maintain winter communication between Prince Edward Island and the mainland of Canada. The engineer's and inspector's report of the present condition of the ss. *Stanley* now on that route; the repairs made; the damage sustained by contact with heavy ice; and any other information in regard to her age, class, etc., in any of the government departments. Presented 10th March, 1905.—*Mr. Martin (Queen's).*

Not printed.

90. Return to an order of the House of Commons, dated 20th February, 1905, for a statement showing the amount and nature of each and every claim that has been made by the firm of P. Lyall & Sons for extras in connection with their contract for the erection of steel sheds in the port of Montreal; and further indicating in each instance whether the claim has been admitted and approved by the Harbour Commissioners or their chief engineer; whether it has been recommended for payment by the government superintending engineer; and in case of dispute between the engineers, what decision the minister of marine and fisheries has given in each case; and the amouut paid or agreed to be paid to the contractor in connection with each claim. Presented 10th March, 1905.—*Mr. Ames.*

Not printed.

90*a*. Return to an order of the House of Commons, dated 27th March, 1905, for copies of all correspondence between the Minister of Marine and Fisheries, or any officer of his department, and Mr. George S. Greene, junior, of New York, regarding the steel freight sheds of the harbour of Montreal; together with the report of the said George S. Greene, junior, upon the plans submitted to him for an opinion. Presented 12th April, 1905.—*Mr. Ames*..... *Not printed.*

91. Return to an order of the House of Commons, dated 1st February, 1905, showing: 1. The present indebtedness to the Dominion Government of the Montreal Turnpike Trust, (*a*) on capital account (*b*) for arrears of interest. 2. The amounts collected at each toll gate belonging to the said turnpike trust during the year ending 31st December, 1904. 3. The names of all parties who have commuted their tolls, and the amount of commutation paid in each case. 4. The amounts expended on each section or road division under the control of said trust, during the said year ending 31st December, 1904; and the contracts given out during the year, with the name of the contractor and the date

CONTENTS OF VOLUME 14—*Continued*..

and amount involved in each case. 5. The amounts paid out during the said year at each toll gate for salaries of day and night keepers, and other expenditure at each of the toll gates maintained. 6. The names of all parties holding passes for free use of the roads under the control of said trust during the said year. 7. The expenses of the said trust during the said year, for rent, salaries of the office, giving name and remuneration of each official. 8. The actual indebtedness in detail of the said trust outside of its bonds due to the government of Canada. 9. The amounts collected year by year since 1896 from municipalities under special agreements made as their share *pro rata* of the bonded indebtedness of the turnpike trust. Presented 15th March, 1905.—*Mr. Monk.*

Not printed.

92. Return to an order of the House of Commons, dated 6th February, 1905, for a statement showing the amounts expended from the 30th of June, 1902, up to the 1st of February, 1905, upon the two wharves and approaches at Ste. Genevieve and Isle Bizard, in the county of Jacques Cartier; also letters addressed to the minister of public works during the year 1904 in reference to the said expenditure, with estimates and statements connected therewith. Presented 16th March, 1905.—*Mr. Monk*.....*Not printed.*

93. Return to an order of the House of Commons, dated 27th February, 1905. for copies of all thermograph records of temperaturés taken on board Atlantic steamships during the calendar year 1903, stating: (1) name of steamship; (2) date when thermograph was put in chamber; (3) date when the steamer left the port; (4) whether chamber was (*a*) cold storage; (*b*) cool air; (*c*) mechanically ventilated: (*d*) ordinary, or whether the record was taken on deck or other place where the natural temperature of the air would be registered, unexposed to the sun's rays; (5) where practicable, in what part of the chamber the thermograph was placed. Presented 17th March, 1905.—*Mr. Henderson*.....*Not printed.*

93*a*. Return to an order of the House of Commons, dated 20th March, 1905, of all the thermograph records used in the transportation of perishable products from Canada, in cold storage or ventilated storage, or cool air compartments. Also a copy of all contracts entered into between the government and any steamship company whereby the company receives a subsidy for installing cold storage or cool air ventilation or ventilated storage. Presented 17th May, 1905.—*Mr. Armstrong.*

Not printed.

93*b*. Supplementary return to 93*a*. Presented 6th June, 1905.....*Not printed.*

94. Return to an order of the House of Commons, dated 6th March, 1905, showing all leases of water power granted on the Welland Canal, not included in the return made to an order of the house dated 3rd April, 1901; the names of the lessees; the quantity of power granted in each lease; the consideration named in each lease, together with the length of the term granted, and the amount of rental reserved in such leases unpaid, if any. Presented 17th March, 1905.—*Mr. German.*

Printed for sessional papers.

95. Return to an order of the House of Commons, dated 13th February, 1905, showing what contracts for public works, or for supplies, have been awarded since July 1st, 1903, to other than the lowest tenderer, in the department of marine and fisheries, by the authority of the governor in council, in the manner set forth in clause 6 of the Act 55-56 Victoria, chapter 17. Also for the names and offers of all unsuccessful tenderers in every such case, and for the reasons why any such lowest tenderer was passed over. Presented 17th March, 1905.—*Mr. Lewis*.....*Not printed.*

96. Return to an address of the Senate, dated 1st March, 1905, for a copy of all correspondence between the government and the Ottawa corporation, relative to the formation of a federal district. Presented 17th March, 1905.—*Hon. Mr. Bernier*.....*Not printed.*

97. Statement showing areas of the provisional districts of the North-west Territories. Presented 20th March, 1905, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

98. School ordinance, North-west Territories, being chapters 29, 30 and 31, passed 1901. Presented 20th March, 1905, by Hon. W. S. Fielding.....*Not printed.*

99. Summary of legislation relating to subsidies to provinces. Presented 20th March, 1905, by Hon. W. S. Fielding.....*Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

100. Return to an order of the House of Commons, dated 20th February, 1905, showing the number of witnesses who appeared before the agriculture committee, whose expenses were paid by the government, for each year from 1890 to 1904 inclusive; the amount paid to each such witness; the name of each; where each came from when their attendance was required; and at whose instance each such witness was brought. Presented 22nd March, 1905.—*Mr. Wilson (Lennox and Addington).*

Not printed.

101. Return to an order of the House of Commons, dated 9th February, 1905, for copies of all correspondence had between the government, or any department or member thereof, and the Alexander Gibson Railway and Manufacturing Company, or any other corporation or corporations, or person or persons, not included in the return brought down on the twenty-ninth day of July, 1904, in reference to the purchase and taking over by the government of the Canada Eastern Railway; and of all other papers in the possession of the government, or any department thereof, not included in the said return of July, 1904, in reference to the purchase and taking over of the said railway, and the cost thereof. And also showing (1) the number of officials and employees in the service of the said railway at the time of its transfer to the government, with their names and their respective salaries or wages; (2) the number of officials and employees now in the service of the said railway, with their names and their respective salaries or wages; (3) the cost of the operation of the said railway from the date of its transfer to the government until the first day of February, 1905, and the gross earnings of the said railway during the same period. Presented 23rd March, 1905.—*Mr. Crocket.*

Not printed.

102. Return to an order of the House of Commons, dated 6th March, 1905, for copies of all petitions, memorials, and resolutions from the legislative assembly of Manitoba, the executive of that province, and any correspondence relative to the extension of the boundaries of Manitoba to the west or north. Presented 3rd April, 1905.—*Mr. Roche (Marquette).*

Printed for both distribution and sessional papers.

102*a*. Supplementary return to No. 102. Presented 5th April, 1905.

Printed for both distribution and sessional papers.

103. Return to an order of the House of Commons, dated 26th January, 1905, of copies of all correspondence had with the government or any member or official thereof, in reference to the building and location of a railway station in Charlottetown, Prince Edward Island; also report or reports or memorandum of any minister or official of the government, with reference to delegations from the province of Prince Edward Island, asking for the construction of such work. Presented 22nd May, 1905—*Mr. Martin (Queen's).* ..... *Not printed.*

104. Return to an order of the House of Commons, dated 20th February, 1905, for copies of all correspondence and documents relating to an application to the Board of Railway Commissioners, and relating to an application lately before the said board, by the towns of Port Arthur and Fort William, to obtain access for their municipal telephone system into the offices of the stations of the Canadian Pacific Railway in the two towns. And for copies of all correspondence between the said towns of Port Arthur and Fort William, and the officers thereof, with the government, with reference to such application, or prior or subsequent thereto. Also copies of any report or recommendation, decision or order made by the railway commissioners with reference to such application or applications, or incident thereto. Presented 5th April, 1905.—*Mr. Boyce* ..... *Not printed.*

105. Return to an order of the House of Commons, dated 27th February, 1905, for a copy of the report of Mr. Matheson relating to the alleged fraud in payment of fishing bounties. Presented 5th April, 1905—*Mr. Ganong.* ..... *Not printed.*

106. Return to an order of the House of Commons, dated 27th February, 1905, showing the business done in the exchequer court of Canada, under its admiralty jurisdiction, since the Admiralty Act of 1891 came into force; giving by districts, (1) the number of actions instituted; (2-*a*) the number of interlocutory applications, and (*b*) trials; (3) the amount involved. Presented 6th April, 1905.—*Mr. Clarke (Essex).* ..... *Printed for sessional papers.*

107. Return to an order of the House of Commons, dated 13th March, 1905, for copies of all correspondence between the Department of Interior and Robert Buchanan, Peter Veregin, Simeon Rieben, and the Dominion Lands Office at Yorkton, or others, relative to the claim of Ivan Shukin to the patent for the northwest quarter section 23, township 31, R. 6, to 2nd M.; and to any cancellation proceedings in connection with the said land. Presented 7th April, 1905.—*Mr. Lake* ..... *Not printed.*

CONTENTS OF VOLUME 11—*Continued.*

108. Return to an order of the House of Commons, dated 6th March, 1905, showing the number and location, cost and earnings, of the cold storage establishments called "Bait Freezers," of Maritime Canada; together with the returns, duly certified, of all such institutions, since 1900; the names and the salaries of all superintendents, officials and keepers of same; and the amounts in pounds of the different kinds of fish therein stored; the amount of bait from them used by *bona fide* fishermen, and the names of the same; together with all such information as may permit of the thorough examination of the question of government assisted refrigerators. Presented 11th April, 1905.—*Mr. Martin (Queen's)*..... *Not printed.*

109. Return to an address of the Commons, dated 20th February, 1905, for copies of all correspondence, telegrams, reports, writings, documents, memorials, orders in council, memoranda, or written or printed information of any kind not already down, which passed between the government of Canada, or of any minister or official thereof, and the government of Prince Edward Island, or of any member or official thereof, in any wise relating to the claim of the province of Prince Edward Island to a share of the Halifax fishery award. Presented 12th April, 1905.—*Mr. McLean (Queen's).*

Not printed.

109*a*. Supplementary return to No. 109. Presented 10th May, 1905. ..... *Not printed.*

110. Return to an order of the House of Commons, dated 20th February, 1905, for copies of all correspondence between the Department of Marine and Fisheries and Mr. A. E. Dyment, M.P.; and also between the Department of Marine and Fisheries and the late Commissioner of Fisheries for Ontario, the Honourable Mr. Latchford, during the past four years, regarding the granting of pound net licenses east of Little Current, Manitoulin Island, to Mr. T. H. Jackman, of Killarney, Ontario. Presented 12th April, 1905.—*Mr. Crocket*..... *Not printed.*

111. Return to an order of the House of Commons, dated 13th February, 1905, for a statement showing the amount of money expended by the Dominion government since the first day of July, 1873, for constructing, equipping, and subsidizing railways and canals, separately, in Canada; adding thereto the value of land given as subsidies, on the basis of one dollar value per acre; and adding further thereto the total estimated liability incurred by Canada on account of the building of the Grand Trunk Pacific Railway. Also a statement showing separately the part of such expenditure made or to be made as above, on railways and canals separately in each province of Canada, and the North-west Territories, deducting any sums that may have been charged any of the provinces or the North-west Territories in their debt account with the Dominion of Canada. Presented 12th April, 1905.—*Mr. Martin (Queen's)*..... *Printed for sessional papers.*

112. Return to an order of the House of Commons, dated 6th February, 1905, for a return of all lists of voters, as prepared by the enumerators, for the several polling subdivisions of the respective electoral districts in the North-west Territories, and used in the recent general election for the house of commons. Presented 17th April, 1905.—*Mr. McCarthy (Calgary)*..... *Not printed.*

112*a*. Return to an order of the House of Commons, dated 8th February, 1905, for a copy of the voters' lists for the constituency of Macdonald, Manitoba, supplied to the clerk of the crown in chancery prior to the general elections of 1904. Also for copies of the voters' lists supplied by the clerk of the crown in chancery to the returning officer for Macdonald constituency for the same elections. And for copies of voters' lists supplied to the various deputy returning officers by the returning officer in the constituency of Macdonald. Presented 27th April, 1905.—*Mr. Staples*..... *Not printed.*

112*b*. Return to an order of the House of Commons, dated 19th January, 1905, for a copy of the original list of the electors of Marquette supplied the clerk of the crown in chancery; also a copy of the list as sent to the returning officer; and for copies of the lists supplied by the returning officer to the various deputy returning officers. Presented 27th April, 1905—*Mr. Roche (Marquette).*

Not printed

113. Return to an order of the House of Commons, dated 20th February, 1905, showing the quantities of anthracite coal used in the several departments of the government of Canada, in the province of Quebec, New Brunswick, Nova Scotia and Prince Edward Island, in the years 1900, 1901, 1902, 1903 and 1904. Also of the total expenditure per year for said coal for each of the said provinces during said years; and separately, the names of the parties to whom paid, and the price per ton paid to each. Presented 17th April, 1905.—*Mr. McLean (Queen's)* ..... *Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

114. Return to an order of the House of Commons, dated 27th March, 1905, showing the imports by provinces into Canada for home consumption from the United States; and the exports of the same from Canada to the United States; and the duty on the same, giving Canadian duty and the United States duty, for the years 1903 and 1904, on the following articles: pork, all kinds; apples, corn, beans—raw, canned and otherwise; tobacco, raw leaf; cattle, horses, wool, hides, sugar beets, hay, eggs, butter, fowls. Presented 25th April, 1905.—*Mr. Clements*.....*Not printed.*

115. Return to an order of the House of Commons, dated 6th March, 1905, showing in detail the various amounts expended during the past two years upon the wharf and abutments situated at Isle Bizard, in Jacques Cartier county, Quebec. Presented 27th April, 1905.—*Mr. Monk*.....*Not printed.*

116. Return to an order of the House of Commons, dated 20th March, 1905, for copies of all correspondence, telegrams, reports, estimates, and all other documents or information which passed between any minister or official of the government and engineers or others, with reference to the investigating or taking of soundings, or any other work for the purpose of ascertaining the best plan and place for the building of a pier or breakwater, in the vicinity of Carleton Point, or Cape Traverse, P.E.I., to establish and facilitate communication between Prince Edward Island and the mainland, winter and summer. Presented 27th April, 1905.—*Mr. Lefurgey*.....*Not printed.*

117. Return to an order of the House of Commons, dated 20th February, 1905, for copies of all reports made by Mr. Burley, or any other officer, in regard to reservations of water rights for stock purposes in the North-west Territories during the last five years. Presented 27th April, 1905.—*Mr. Roche (Marquette)*.....*Not printed.*

118. Return to an order of the House of Commons, dated, 27th February, 1905, for copies of all correspondence, letters, reports, petitions, memoranda, in possession of the government, or any member or official thereof, relating to the location and erection of a railway station at Grand View, on the Murray Harbour branch of the Prince Edward Island Railway. Presented 28th April, 1905.—*Mr. Martin (Queen's)*.....*Not printed.*

119. Return to an order of the House of Commons, dated 20th February, 1905, showing the sums of money spent by the Dominion government since 1896 upon each of the following: (*a*) Port Arthur harbour; (*b*) Fort William harbour; (*c*) Kaministiquia river; classified into (1) dredging; (2) breakwaters; (3) other purposes. The quantities of each of the following to be excavated during 1905-6 in each of the three locations above named: mud and sand, clay, hardpan, rock. The dates and terms of the contracts entered into with those engaged in dredging at the aforesaid points in 1903-04 and 1904-05. The said contracts. The horse-power, tonnage and dimensions of each of the dredges engaged in said work. The cost of dredges newly built, similar to those engaged at the above three points. Presented 28th April, 1905.—*Mr. Hughes (Victoria)*.....*Not printed.*

120. Return to an order of the House of Commons, dated 13th March, 1905, for each of the fiscal years from 1st July, 1897, to 30th June, 1904, of the expenditure on capital account upon the Drummond Counties Railway, and of the descriptions of work and materials for which such expenditure was made. Presented 9th May, 1905.—*Mr. Foster*.....*Not printed.*

121. Return to an order of the House of Commons, dated 20th February, 1905, showing in tabular form the amounts first voted for public buildings in towns in Canada of not more than 5,000 inhabitants; the year in which the first amount was in each case voted; the total amount expended to complete each building; the year in which it was completed; the revenue derived from post office, customs and inland revenue, separately, for the year in which the first vote was taken, and the rentals paid for the buildings in use for the above services during the same year, and the population of each town for that year; said return to cover the period from January, 1888, to February, 1905, inclusive. Presented 19th May, 1905.—*Mr. Foster*.....*Not printed.*

122. Return to an order of the House of Commons, dated 26th May, 1905, of copies of correspondence, etc., in relation to the Thessalon post office. Presented 26th May, 1905.—*Sir William Mulock.*
Not printed.

123. Return to an address of the House of Commons, dated 27th February, 1905, for copies of all petitions and correspondence between the boards of trade of Toronto and Montreal respectively, and the governor in council, in reference to the appointment of grain survey boards, under the authority of the Grain Inspection Act, at Toronto and at Montreal; and for copies of the orders in council whereby the aforesaid appointments were made. Presented 6th June, 1905.—*Mr. Ames.*
Not printed

CONTENTS OF VOLUME 14—*Continued.*

124. Return to an address of the House of Commons, dated 27th March, 1905, of the following documents in respect of payments made on account of the subsidy voted in 1901 for a line of railway between Caplin and Paspebiac: 1. Copy of authority to act, together with full instructions issued to Commissioner Mothersill. 2. Report and findings of Commissioner Mothersill. 3. Sworn evidence of claimants who appeared before Commissioner Mothersill, as taken down by Stenographer Roy. 4. Copy of authority to act, and full instructions to Commissioner Langelier. 5. Report and findings of Commissioner Langelier. 6. Sworn evidence, if any, of claimants appearing before Commissioner Langelier. 7. Affidavits presented to Commissioner Langelier and subsequently. 8. Copy of resolution or order in council adopting report of Commissioner Langelier. 9. A statement giving each of the several payments made by the government since July 1st, 1901, on account of the subsidy voted in 1901 for a line of railway between Caplin and Paspebiac; showing in respect of every such payment to whom, by whom, on what date, in connection with part of the road, the date of original filing of claim, and on whose recommendation each payment was made. 10. All correspondence which may have passed between the Department of Railways and Canals, or any person connected therewith, and Commissioner Langelier, in respect of the investigation and payment of said claims. Also all correspondence between the member for the county of Bonaventure and the department, and between said member and Commissioner Langelier on this subject, as well as by the trustees of the Atlantic and Lake Superior Railway, C. N. Armstrong, T. C. Casgrain, H. C. J. Gilendez or any other person on their behalf and the department. Presented 15th June, 1905.—*Mr. Ames*.....*Not printed.*

125. Return to an order of the House of Commons, dated 13th March, 1905, for copies of all correspondence, letters, petitions, etc., in possession of the government, or any member or official thereof, relating to land damages claimed by Thomas Curley, Charles Mitchell and others, of Village Green, Prince Edward Island, for lands expropriated for the Murray Harbour branch of the Prince Edward Island Railway. Presented 30th June, 1905.—*Mr. McLean (Queen's)*.....*Not printed.*

126. Return to an address of the House of Commons, dated 13th February, 1905, for copies of all correspondence and despatches between the government of Canada and the Imperial government, in regard to the establishment of a branch of the Royal Mint in Canada. Presented 4th July, 1905.—*Mr. Monk*.....*Not printed.*

127. Copy of the account of the counsel and the expert witness as certified to by the chairman of the select special committee appointed last session to investigate the position of the Mutual Reserve Fund Life Association of New York in Canada. Presented (Senate) 28th June, 1905, by Hon. R. W. Scott. *Not printed.*

127*a*. Letter from C. J. Coster to the Clerk of the Senate, acknowledging a receipt of a cheque for $500 on account of counsel fees in connection with the special committee on the Mutual Reserve Fund Life Association of New York, and also a letter from A. Power, acting Deputy Minister of Justice, referring to a number of accounts submitted to the Department of Justice for taxation in connection with the investigation of the said committee. Presented (Senate) 29th June, 1905, by Hon. R. W. Scott.....*Not printed.*

128. Return to an address of the House of Commons, dated 13th March, 1905, for copies of all correspondence, orders in council, agreements, reports, etc., in connection with the taking over by the Dominion government of the Halifax and Esquimalt defences. Presented 7th July, 1905.—*Mr. Foster*.....*Printed for both distribution and sessional papers.*

129. Return to an order of the House of Commons, dated 27th March, 1905, for copies of all correspondence, telegrams, papers, memoranda, etc., between the government and members of the Canadian militia, in regard to the granting of the King's South African medal to Canadians doing 18 months' South African war service Presented 10th July, 1905.—*Mr. Worthington*.....*Not printed.*

130. Return to an order of the House of Commons, dated 10th July, 1905, for a copy of the memorandum from the members of the Militia Council to the Minister of Militia and Defence; and also a copy of the memorandum of the Minister of Militia and Defence relating to the militia estimates. Presented 10th July, 1905.—*Sir Frederick Borden*..*Printed for both distribution and sessional papers.*

131. Return to an order of the House of Commons, dated 6th March, 1905, showing the names of residents in the North-west Territories, not entitled to a second homestead, for whom the sanction of the department has been given, allowing them to purchase additional quarter sections, subject to ordinary cultivation conditions; the dates upon which such sanctions were given; the lands which

CONTENTS OF VOLUME 14—*Continued.*

have been purchased by such settlers in consequence of this authority, with the price agreed upon, and the sum paid down; also the form in which the authority to make the sale was made known to the local agents of Dominion lands. Presented 10th July, 1905.—*Mr. Lake*.....*Not printed.*

132. Partial return to an order of the House of Commons, dated 13th March, 1905, showing: (1) the number of permanent appointments, male and female, respectively, made to the civil service (inside division) in Ottawa, since July 1st, 1896; (2) the present strength of the civil service in Ottawa (inside division) permanent staff, specifying whether male or female; (3) the number of temporary employees, male or female, on the pay-list for the inside divisien of the civil service at Ottawa for January, 1905; (4) the number of temporary employees, male and female, appointed since July 1st, 1896; (5) in addition to the permanent and temporary clerks at present employed in the public service in Ottawa, the number of artisans, labourers, or other workmen employed at Ottawa during the month of January, and showing to which department these men are attached. Presented 10th July, 1905.—*Mr. Sproule*.....*Not printed.*

133. Rules of the Supreme Court of Prince Edward Island in criminal cases Presented (Senate) 10th July, 1905, by The Speaker.... .....*Not printed.*

134. Return to an address of the House of Commons, dated 27th March, 1905, for copies of all correspondence, telegrams, letters, memoranda, orders in council, reports, etc., in possession of the government, or any member or official thereof, in connection with the granting of an additional subsidy to the province of Prince Edward Island, in 1901, of $30,000 a year, and the basis on which the said subsidy was agreed to be paid to the province. Presented 11th July, 1905.—*Mr. Martin*..*Not printed.*

135. Return to an address of the Senate, dated 6th July, 1905, showing: 1. The amount (acreage) of school lands sold in the North-west Territories since the union. 2. The amount of principal (if any), and also the amount of interest paid over to the Territorial government. 3. The amount (acreage) of lands sold, and the average price per acre in each year for which such lands were sold. 4. The amount at present standing to the credit of the school fund. 5. The amount owing on sales to be carried to the credit of said fund. Presented 12th July, 1905.—*Hon. Mr. Lougheed*....*Not printed.*

136. Return to an order of the House of Commons, dated 13th February, 1905, for copies of all correspondence, petitions, resolutions, reports, memoranda, in possession of the government, or any member thereof, relating to the survey and construction of branch railway lines in the province of Prince Edward Island. Also the number of surveys made in the province since 1900, the routes surveyed, and the cost of each. Presented 14th July, 1905.—*Mr. Martin (Queen's)*....*Not printed.*

137. Return to an order of the House of Commons, dated 14th July, 1905, for a copy of the details of the third item of Resolution 107 of the Supplementary Estimates, 1905-6: Construction of lighthouses and aids to navigation, including apparatus, $675,000. Department of Marine and Fisheries. Presented 14th July, 1905.—*Hon. J. R. F. Préfontaine*.....*Not printed.*

138. Return to an order of the House of Commons, dated 14th July, 1905, for a copy of the report of Superintendent J. D. Moodie, on service in Hudson Bay, per ss. *Neptune*, 1903-4. Presented 14th July, 1905.—*Hon. J. R. F. Préfontaine* .....*Printed in Sessional Paper No. 28.*

139. Extracts of reports of committees of the honourable the privy council, approved by his excellency on the 31st May, 1902, and 20th September, 1904, respectively, relative to the carrying out of a certain propaganda in certain European countries to promote emigration to Canada by the North Atlantic Trading Company of Amsterdam, Holland. Presented 19th July, 1905, by Hon. F. Oliver.
Not printed.

140. Report of W. M. Graham, inspector of Indian agencies in the Assiniboine agency, and also in the Moose Mountain agency. Presented 19th July, 1905, by Hon. F. Oliver.....*Not printed.*

141. Correspondence respecting the sale of certain disputed islands in the Georgian Bay, south of Moose Deer Point. Presented 19th July, 1905, by Hon. F. Oliver..... .....*Not printed.*

142. Copy of an indenture between His Majesty King Edward the Seventh and the Dominion Coal Company, Limited. Presented 19th July, 1905, by Hon. F. Oliver..... ..... *Not printed.*

143. Return to an address of the Senate, dated 7th July, 1905, for a return of the number of closed grazing leases granted since 1897 by the government of the North-west Territories, together with the following information relating thereto: The number of acres in each lease, the date when, and time for which granted; the parties to whom granted, and by whom at present held; the rental per acre, and the township and range in which situate. Presented 14th July, 1905.—*Hon. Sir Mackenzie Bowell*..... .....*Not printed.*

CONTENTS OF VOLUME 14—*Concluded.*

144. Return to an address of the Senate, dated 6th April, 1905, for copies of all despatches, letters, telegrams and other correspondence and communications received by the department of public works, or any officer thereof, or by any department of the government, or by any officer thereof, from the Honourable Senator Philippe Auguste Choquette in any way relating to lot 4438-A of the official plan and book of reference of Montcalm Ward, of the city of Quebec, and to the purchase thereof by His Majesty King Edward VII, and of all despatches, letters, telegrams and other correspondence and communications sent by any and all such departments and officers to the Honourable Senator Choquette relating thereto; also copies of all plans, if any, filed for the purpose of expropriating said lot in the registration division wherein said lot is situate, and copies of any other expropriation proceedings authorized or required by law to be followed in connection with the expropriation of lands for public purposes and which in any way relate to the lot aforesaid; copies of all appointments of valuators regarding said lot; copies of all applications for the appointment of such valuators, and of all correspondence, letters and telegrams relating to such appointments; and copies of any valuations of said lot made by any valuators; copies of all orders in council relating to said transactions and to the purchase of said property; copies of all deeds, powers of attorney and orders in council executed, made or passed relating to the purchase or acquisition of said His Majesty King Edward VII. Presented 18th July, 1905.—*Hon. Mr. Landry*.....*Not printed.*

145. Return to an address of the Senate, dated 16th May, 1905, for copies of all correspondence between Henry F. Coombs, of St. John, N.B., and the department of agriculture of Canada, or any officer thereof, relating to articles forwarded by the said Henry F. Coombs to the Paris exhibition, in 1900, and his claim for expenses in connection therewith and for payment to him for articles damaged or not returned. Presented 19th July, 1905.—*Hon. Mr. Landry*.....*Not printed.*

146. Return to an address of the Senate, dated 14th June, 1904, for: 1. A statement showing many distinct columns, the names and surnames, the age, rank, the domicile, the origin, of officers, sub-officers and men of the crew of the ship sent in 1903 to explore Hudson's Bay. name of the ship chartered for this expedition, its tonnage, the name of its owner, the price for its service, the duration of this service. 3. The term of service of each of the men (officers, sub officers, sailors, etc.) who composed the crew of this vessel. 4. All the correspondence relating to this expedition, including therein the instructions given. 5. A copy of each report made by the authorities on board from the commencement of this expedition. Presented 18th July, 1905.—*Hon. Mr. Landry*.. ..... *Not printed.*

147. Orders in council passed since last session, submitted for the approval of parliament in accordance with provisions of section 5 of chapter 34, of the Statutes of Canada, 1902. Presented July 1905, by Hon. F. Oliver.....

DEPARTMENT OF THE INTERIOR.

REPORT

OF THE

SURVEYOR GENERAL

OF

DOMINION LANDS

FOR THE

YEAR ENDING JUNE 30,

1904

138

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PRINTED BY ORDER OF PARLIAMENT

OTTAWA

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1905

REPORT OF THE SURVEYOR GENERAL.

DEPARTMENT OF THE INTERIOR,
TOPOGRAPHICAL SURVEYS BRANCH,
OTTAWA, October 31, 1904.

JAMES A. SMART, Esq.,
Deputy Minister of the Interior,
Ottawa.

SIR,—I have the honour to submit the following report upon the operations of the Topographical Surveys Branch for the twelve months ending June 30, 1904.

DESCRIPTION OF THE WORK.

The survey of townships for settlement constitutes the most important part of the work of the Topographical Surveys Branch. Two classes of survey parties are employed. In one class the surveyor and his men are paid by the day; in the other class, the surveyor contracts to make the survey at certain rates per mile of line surveyed, such rates being proportional to the difficulties of the survey. Before a township is subdivided, its boundaries or exterior outlines are marked on the ground; then the subdivider, usually a contractor, establishes the boundaries of the sections or section lines. The next step is to survey the lakes or rivers in the township for ascertaining the area of the fractional quarter-sections fronting on such lakes or rivers. This kind of survey is called a 'traverse.' The same designation is applied to the survey of roads, settlers' improvements, &c. Work in townships includes also the restoration of obliterated lines, or lines which have nearly, although not entirely, disappeared, the resurvey of lost lines, or lines which have entirely disappeared, and the retracement of erroneous lines made for the purpose of plotting correct plans of these lines. The three kinds of surveys are grouped together in this report under the general designation of 'resurveys.'

SURVEYS OF 1903.

Five hundred and thirty-five whole townships and eighteen fractional townships were completely subdivided during the calendar year 1903, while sixty-six townships were partially subdivided. There were also sixty-one townships completely resurveyed and twenty-eight partially resurveyed during the same time. Sixty-nine survey parties were employed, sixty-six being engaged on township surveys and three on other surveys. Of the parties employed, sixteen were paid by the day and fifty-three were working under contract. Two of the parties under daily pay were located in Manitoba, eleven in the North-west Territories and three in British Columbia. The fifty-three contractors were all engaged in the North-west Territories on township subdivision surveys. The sixteen parties under daily pay were distributed as follows :—

1. W. A. Ducker.—Outlines in southeastern Manitoba.
2. C. F. Aylsworth.—Subdivision and other surveys in western Manitoba.
3. P. R. A. Belanger.—Resurveys north of Qu'Appelle, Assiniboia.

4. A. Saint Cyr.—Outlines north of Battleford, Saskatchewan.
5. J. J. Dalton.—Outlines and other surveys near Fort Pitt, Saskatchewan.
6. J. K. McLean.—Outlines north of Edmonton, Alberta.
7. G. J. Lonergan.—Resurveys near Edmonton, Alberta.
8. E. W. Hubbell.—Resurveys south of Edmonton, Alberta.
9. J. N. Wallace.—Outlines west of fifth meridian, Alberta.
10. L. E. Fontaine.—Subdivision in southern Alberta.
11. J. E. Ross.—Subdivision eastern British Columbia.
12. J. A. Kirk.—Subdivision near Revelstoke.
13. A. W. Johnson.—Subdivision in western British Columbia.
14. A. S. Weeks.—Assistant Inspector of Surveys.
15. C. E. Bourgault.—Assistant Inspector of Surveys.
16. A. O. Wheeler.—Topographical Survey in the Rocky Mountains.

The contract surveys were executed under the direction of Messrs. William Pearce, Chief Inspector of Surveys, and Thomas Turnbull, Inspector of Surveys. Each had a surveyor and a party to assist in inspecting the surveys.

The work of the parties engaged on township surveys in 1903 is given below; for the purpose of comparison, the figures for 1902 have been added. The latter differ slightly from those published in the report for 1902, the present figures including all the parties employed on township surveys :—

		1903	1902
Number of parties		65	37
Township outlines	Miles	833	1,919
Section lines	"	25,982	5,867
Traverse	"	4,050	1,282
Resurvey	"	5,390	3,269
Total for the season	"	36,255	12,337
Average per survey party	"	558	333

The increase in the average work per survey party from 333 miles in 1902 to 558 miles in 1903 is accounted for by the nature of the country surveyed; it was more or less wooded in 1902, while in 1903 a considerable portion was bare prairie. The rains, floods and high water of 1902 also interfered with the progress of the operations.

The work of the surveyors under daily pay and of the contractors compares as follows :—

Work of P. R. A. Belanger (paid by the day).

		1903.	1902.
Resurveys	Miles	3,100	2,878
Section lines	"	28	
Traverse	"	6	

Work of parties under daily pay.

		1903.	1902.
Number of parties		12	17
Township outlines	Miles	632	1,214
Section lines	"	478	1,188
Traverse	"	236	489
Resurvey	"	497	374
Total for the season	"	1,843	3,265
Average per survey party	"	154	192

Work of parties under contract.

		1903.	1902.
Number of parties		52	19
Township outlines	Miles	201	705
Section lines	"	25,476	4,679
Traverse	"	3,808	793
Resurvey	"	1,793	17
Total for the season	"	31,278	6,194
Average per survey party	"	601	326

Particulars of the work of every surveyor are given in schedule form in Appendix No. 3 to this report. Leaving out Mr. P. R. A. Belanger, whose work consisted almost entirely of resurveys, the most striking feature of the schedule is the large difference in cost between day and contract work. This difference is further illustrated by the figures given above for the output of survey parties, an average of 192 and 154 miles for a party under daily pay against 326 and 601 miles for a contractor. It must, however, be borne in mind that the surveys executed are not of the same character. The surveyor under daily pay establishes the bases or governing lines of the Dominion lands system, which require to be located with more care and accuracy than can be expected from a contractor. He sub-divides the lands in the mountains, and, generally, makes all surveys which, owing to peculiar difficulties, cannot be given out under contract at fixed rates. Such surveys are naturally expensive : even if it were possible to have them executed under contract, the cost would be higher than the figures found in the schedule for contract work. However, it is plain that the contract system is the most economical, and as a general rule, every survey is given out under contract unless special reasons exist for having it executed otherwise.

The topographer of the department, Mr. A. O. Wheeler, has completed the survey of the Selkirk Range. His report is in course of publication, and his map is being engraved. He is now doing the same work in the Rocky Mountains and Yoho parks as in the Selkirk Range.

SURVEYS OF 1904.

A remarkable change is apparent in the perfection and accuracy of the surveys : it is mainly due to the improved methods prescribed for the guidance of surveyors in the revised edition of the Manual of Survey issued last year. It is to be noted that the amelioration has taken place notwithstanding the enormous amount of work accomplished and the difficulty of exercising an efficient control over operations of such magnitude.

The weather has generally been favourable for surveying, although some delay was caused in the spring by the floods in the Saskatchewan and Qu'Appelle rivers, and the interruption of the service on the Prince Albert branch of the Canadian Pacific Railway.

The surveyors were under the direct management and control of this office. An efficient system if inspection of the survey contracts was organized, four inspectors, each with a small party, being employed for that purpose. The inspectors have to see that the lines are established correctly and the survey monuments properly built; they also collect sufficient information for controlling the accuracy of the contractors' field notes and for checking their accounts. The importance of this check, with rates varying from $6 to $38 per mile, cannot be overestimated.

Prior to July 1, 1904, seventy-five survey parties were at work, seventy being engaged on township surveys and five on other surveys. Of the parties employed, twenty-one were paid by the day and fifty-four were working under contract. Forty-eight of the contracts were for the sub-division of townships in the Northwest Terri-

tories, the remaining six being in the Province of Manitoba. The twenty parties under daily pay were distributed as follows:—

1. W. A. Ducker.—Survey of township outlines in southeastern Manitoba.
2. C. F. Aylsworth.—Subdivision and miscellaneous surveys in central Manitoba.
3. L. T. Bray.—Resurveys in southern Manitoba.
4. P. R. A. Belanger.—Restoration surveys in Assiniboia, northeast of Qu'Appelle.
5. J. J. Dalton.—Miscellaneous subdivision surveys in southern Alberta.
6. G. J. Lonergan.—Renewal surveys in Edmonton district.
7. E. W. Hubbell.—Renewal surveys southwest of Edmonton.
8. J. K. McLean.—Outlines north of Edmonton.
9. L. E. Fontaine.—Outlines in northern Alberta.
10. Edgar Bray.—Outlines northwest of Edmonton.
11. A. Saint Cyr.—Outlines in Peace River district.
12. J. N. Wallace.—Outlines in Peace River district.
13. H. W. Selby.—Outlines in Peace River district.
14. J. E. Ross.—Subdivision near Kamloops, British Columbia.
15. A. W. Johnson—Subdivision near Harrison Lake, British Columbia.
16. J. A. Kirk.—Subdivision near Revelstoke.
17. J. D. Craig.—Inspector of Surveys, eastern section.
18. E. H. Phillips.—Inspector of Surveys, south of Battleford.
19. T. S. Nash.—Inspector of Surveys, eastern Alberta and Onion Lake district.
20. G. H. Watt.—Inspector of Surveys, Edmonton and Calgary district.
21. A. O. Wheeler.—Topographical survey in the Rocky Mountains.

Besides the parties enumerated above, a few surveyors are on the local staff of the Yukon Territory; they receive their instructions from the commissioner of the territory, but are paid out of the appropriation for Dominion land surveys. The same remark applies to the surveyors employed on irrigation surveys under the direction of the Deputy Commissioner of Public Works of the Northwest Territories.

DESCRIPTION OF TOWNSHIPS.

Descriptions of townships in which surveys have been made during the year 1903 have been compiled from the surveyor's reports, and are given as Appendix No. 11. For convenience of reference the descriptions have been arranged by townships and ranges.

RATE FOR SUBDIVISION SURVEYS.

When explaining in last year's report that a new schedule of rates for the payment of surveys executed under contract had been adopted, it was pointed out that the classification being entirely new and somewhat complicated, it might be expected that experience would show the necessity of amendments. The changes were actually less than anticipated, and the principle of the new classification has proved to be correct.

After one year's trial, every contractor was requested to express his opinion, to state his objections and to suggest amendments. A perusal of their replies shows that apart from the deficiencies inherent to the system of contract surveys, and for which it is impossible to provide, the new classification is as nearly perfect as it is possible to make it, and that most of the surveyors are well satisfied with it. Of course, some surveyor will always be found who through bad management or incompetence will fail where others are realizing large profits ; no system of rates that can be adopted will provide against such contingencies.

MANUAL OF SURVEY.

The first manual of instructions for the guidance of Dominion land surveyors was published in 1871 by Col. J. S. Dennis, then Surveyor General. The two following

editions in 1881 and 1883 were compiled by the undersigned. The next edition, issued in 1892, was a revision prepared under instructions of the deputy minister by the chief astronomer, Mr. W. F. King, and the Chief Inspector of Surveys, Mr. J. S. Dennis. The last edition, prepared by the undersigned, was issued in 1903, and is fully referred to in last year's report. Many important changes having been made in the methods hitherto in use, it was found after one year's experience that a few details had been overlooked, and that the manual might be further improved by some slight amendments. These amendments were issued at the beginning of 1904.

Convenient astronomical tables have been printed in this office for the use of surveyors in the field. They are on a single sheet of strong paper, 15 x 6 inches, folding to 3 x 6 inches for the pocket, and contain all the data necessary in subdividing townships. Through the use of these tables in connection with the new pattern of transit theodolite supplied by this office, the astronomical work of the surveyors has become exceedingly simple, and they can afford to observe frequently without interfering with the progress of the survey. The folder contains a table for finding the pole star and the astronomical meridian, a list of time stars, a table of the sun's apparent right ascension at Greenwich apparent noon, a small map showing magnetic bearings of astronomical north in western Canada, and diagrams showing at a glance the latitude, longitude and convergence of meridians for any township or range.

OFFICE WORK.

A number of changes have taken place in the staff of the branch. In the Metcalfe street office Miss J. W. Barrie, stenographer and typewriter, has resigned, and Miss G. B. Campbell has been appointed in her place. F. T. Ellis has been appointed as messenger. Messrs. J. D. Craig, D.L.S., G. H. Watt, D.L.S., E. H. Phillips, D.L.S., and T. S. Nash, D.L.S., are in charge of parties in the field, inspecting surveys made under contract. Mr. P. W. Currie, D.L.S., has been transferred to the survey records office, Mr. N. B. Sheppard to the patents branch, and Mr. John Macara to the office of the chief astronomer. Messrs. M. L. Gordon, D.L.S., G. A. Grover, D.L.S., and R. H. Knight, D.L.S., have resigned to take survey contracts. The following are acting temporarily as assistants to surveyors : J. C. Baker, E. L. Burgess, T. H. G. Clunn, F. G. D. Durnford, John Empey, C. C. Smith, A. G. Stacey and J. E. Umbach. Messrs. E. B. Bolger, F. J. Hethrington, F. H. MacLaren, A. L. MacNaughton, R. H. Montgomery and N. J. Ogilvie have left the office. The additions to the staff during the year are : E. M. Dennis, B. Sc., J. V. Dillabough, Grad. School of Mining, Kingston; G. B. Dodge, late of the Admiralty survey of Newfoundland; A. J. Elder, H. Fitzsimons, M. L. Gordon, Grad. of Royal Military College; S. N. Hill, B. T. Horsey, H. G. Jackson, B. Sc., R. H. Knight, B. A. Sc., F. H. Mackie, B. Sc., F. A. Moore, Grad. School of Practical Science; J. P. McCormick, S. S. McDiarmid, B. Sc., G. G. McNab, M.A., D. H. Philp, Grad. School of Practical Science; D. F. Robertson, Alec. Roger, G. S. Roxburgh, I. J. Steele, Grad. School of Practical Science, and E. E. D. Wilson. Jas. Bennie, R. J. Craig, Robt. Fraser, S. J. Gagnon, J. P. McElligott and Chas. J. Wood have been added to the staff of the geographer. G. Beeson, J. D. Blais and G. J. H. Lemaitre have resigned from the lithographic office; A. Kilmartin and R. Moore have been transferred to the photographic office, and A. Groulx to the office of the chief draughtsman. Besides the two employees transferred from the lithographic office, A. L. Devlin has been appointed to the photographic office. Mr. F. Clayton, formerly clerk in charge of the survey records office, died in 1903, and Mr. C. J. Steers has taken his place. Mr. P. W. Currie, D.L.S., was appointed as his assistant, and Mr. E. J. Bolger has been added to his staff.

Mr. Clayton had been in the service since 1872, for several years as clerk in charge of the general work of the draughting office, including the examination of surveyors' returns, &c., and afterwards as keeper of survey records, although a large amount of

miscellaneous work was also placed under his direction. In view of his intimate knowledge of the surveys from almost their inception, retained by an unusually accurate memory, of his good business habits and sound judgment, his death is a serious loss to the staff of the department.

CORRESPONDENCE AND ACCOUNTS.

The correspondence consisted of:—

Letters received	10,645
Letters sent	11,312

The accountant's records show:—

Number of accounts dealt with	776
Amount	$705,202.66
Cheques forwarded	2,383

The staff consists of one correspondence clerk, one accountant, two stenographers and typewriters and two messengers.

OFFICE OF THE CHIEF DRAUGHTSMAN.

A schedule of the work of the chief draughtsman's office is given as Appendix No. 7. He reports as follows:—

The work done during the year is considerably in excess of that of last year. The increase of field work means a corresponding increase in the office work. For instance, the number of township subdivision surveys examined during the past twelve months is four times the number given in last year's report. The number of township plans completed for printing is over twice as great as last year, which increase also appears in the number of proofs of township plans examined. The outline sketches prepared for the information of the surveyors in the field are over 300 in excess of those prepared last season. Almost twice as many progress sketches were received from the surveyors, and the same increase has taken place in the number of statutory declarations of settlers sent in by surveyors. The number of field books and plans received from the record office and used in connection with office work is also greatly in excess of last year, having almost reached the two thousand mark.

About 950 requests for information were received and dealt with. They referred to a great variety of subjects, such as application for surveys, resurveys or restoration of obliterated lines, for areas and descriptions of parcels of land, questions as to boundaries and the monuments thereon, &c., &c.

The returns of survey of 55 lots in the Yukon Territory were received and confirmed. There were also received 26 plans representing surveys of public roads and of base lines, connecting together different groups of lots in the Yukon Territory. Lists of these surveys are given in Appendices 5 and 6.

The sectional maps on a scale of two miles to an inch have been kept up-to-date as new surveys were completed. These maps now cover almost the whole of the country where surveys have been made and where settlement is taking place. New additions of these maps on a scale of three miles to an inch have been issued after surveys in the districts were completed, or when the previous editions were exhausted. The sheets issued were: Wood Mountain, Tramping lake, Sullivan lake, Sicamous, Regina, Winnipeg, Calgary, Edmonton, Peace hills, Spillmacheen, Lytton, Cypress, Turtle mountain, Bad hills, Sounding creek, Swift Current, Shell river, Portage la Prairie, Brandon, Moose mountain, Rosebud, Manitoba House, Morley, Fairford, Riding mountain, Fort Alexander, Swan river, Saddle lake and St. Ann. Total number, 29.

The staff of the office at the end of June consisted of the chief draughtsman and fifty draughtsmen. The staff is still divided, part of it being in Orme's block on Sparks

street and the remainder in the building at the corner of Metcalfe and Slater streets. Besides the staff mentioned, twelve of our men are in the field, four acting as inspectors of surveys and eight as assistants to outline surveyors. Most of these men are expected to come back on the office staff when the season's operations in the field are over.

The system of examining returns of survey and of plotting the plans, which is now in use is a departure from the method used prior to 1903. Until that time the surveyor was required to send in field notes and corresponding plans. These were examined and returned to the surveyor for correction or for additional information. After being returned by him to this office they were re-examined, and if found satisfactory they were sent back to him to be sworn to. This procedure in most cases was the cause of much delay in the approval and confirmation of the survey. The present practice in dealing with subdivision surveys is briefly as follows : Surveyors are required to send in at least once a month a report of their work, accompanied by sketches of every township surveyed. The progress sketch of a township now shows the lines surveyed, with their chainage and bearings, and the lakes which have been traversed. It indicates also the quarter sections which do not contain the full area of 160 acres. This sketch is sent in as soon as the work is completed. After its receipt here, advances on account of the survey up to 75 per cent of the total amount earned are made if the sketch supplies the requisite information and shows no mistakes in the survey. If the sketch is not satisfactory it is sent back to the surveyor, with a request for corrections or additional information. From these sketches the preliminary plans are made, one copy of which goes to the Patents branch of the department and one copy to the Dominion lands agent of the district in which the township lies. The land in the township, with the exception of the quarter sections broken by lakes or traversed rivers, is then available for homestead entry. The surveyor sends in a copy of his field notes of a township as soon as convenient, making affidavit to their correctness. The field book after being entered in the register is given a cursory examination in order to determine whether and glaring errors or omissions have been made, and if anything very wrong is found the field book is at once returned to the surveyor for correction. The astronomical observations for the determination of the bearings of surveyed lines in a township are given in the field book of the township. These are carefully checked during the cursory examination to see that the bearings given in the notes agree with the result of the observations. After the cursory examination, the account given in the field book is examined; if found correct a further advance on account of the cost of the survey is authorized. An exhaustive examination of the field notes is next made, a rough plan of the township on a scale of 30 chains to an inch being plotted at the same time. A memorandum of the errors, omissions or discrepancies found is now sent to the surveyor, with a request for further information. On receipt of his reply, the corrections which he indicates are made in his field book. Then from the rough plan a copy on the same scale is carefully drawn for photozincography. It is reduced by photography to a scale of 40 chains to an inch, and transferred directly to the zinc plate, from which the plan is printed.

Township plans give the areas of whole quarter-sections to the nearest acre. The areas of quarter-sections broken by lakes or large rivers are given in legal subdivisions to the nearest tenth of an acre. The plans show the lengths and bearings of all section lines and the nature of the monuments placed at the corners.

These changes in the office practice have had many very desirable results. The lands surveyed are made at once available for settlement. Greater accuracy is secured in plotting the surveys and calculating the areas. The plans are uniform; they contain all the information necessary for defining exactly the limits of each portion of land and the manner in which they are marked on the ground.

PHOTOGRAPHIC OFFICE.

A statement of the work executed is given as Appendix No. 9 to this report; it shows a total of 5,356 prints and negatives against 3,608 last year. Photography is

now used for reducing to the scale of the township plans the surveys of lakes and rivers furnished by the surveyors with their field notes; the reductions are employed for plotting the township plans. Formerly these surveys were reduced by means of the pantograph; the employment of photography has resulted in a great saving of time and labour.

The staff consists of one photographer in charge, one photo-lithographer and photo-engraver, two photographers and three assistants.

LITHOGRAPHIC OFFICE.

The substitution of photo-zincography for photo-lithography, mentioned in last year's report, has been completed. Township plans were formerly printed in four, five and six colours; to print the 490 plans issued during the year would therefore have involved the preparation of 2,500 stones. This was more than the office could undertake, and would have required a very large establishment. With photo-zincography the 490 plans were printed without difficulty; several times that number could have been printed without overtaxing the office. The process consists in sensitizing a thin sheet of zinc and exposing it under a negative. After development, it is rolled with printing ink, stretched on an iron frame and placed in the press. It is printed from like a lithographic stone. The method has proved extremely convenient here; the results are not quite perfect, but they will improve when we become better acquainted with the details of the process.

A statement of the work executed is given as Appendix No. 10 to this report; it shows 81 maps printed, against 74 last year and 490 township plans against 219 last year.

The staff consists of one foreman, one transferrer, one power press printer, one stone polisher and two autographers.

BOARD OF EXAMINERS FOR DOMINION LAND SURVEYORS.

The number of candidates for examination, both for the preliminary examination previous to being articled as pupil and for the final examination, shows a considerable increase. The large amount of survey work carried on during the last two seasons is attracting young men into the profession. Thirty-seven passed the preliminary and fourteen the final examination.

The regular meeting of the board was held as directed by clause 101 of the Dominion Lands Act on the second Monday in February, 1904, and following days, and special meetings were held from the 4th to the 10th May, on the 9th June, and from the 16th to the 21st June.

The regular examinations were held at the time of the meeting in February. Special examinations were also held as follows: From February 9 to 16, at Vancouver, by E. B. Hermon; April 23 to 27, at Ottawa, by the Surveyor General; April 25 to May 3, at Winnipeg, by Mr. J. L. Doupe, and on May 2, at Toronto, by Prof. L. B. Stewart.

The following candidates successfully passed examinations before the board:—

Preliminary Examination for Admission as Articled Pupil.

H. G. Barber, Ottawa, Ont.
J. E. Morrier, Ottawa, Ont.
D. H. Nelles, Ottawa, Ont.
G. McMillan, Ottawa, Ont.
J. Waldron, Pine Grove, Ont.
F. H. Mackie, Welland, Ont.
S. N. Graham, Kingston, Ont.
P. Gillespie, Toronto, Ont.
W. M. Edwards, Iroquois, Ont.
J. Parke, Oil City, Ont.
F. B. Reid, Bowmanville, Ont.
H. L. Chilver, Walkerville, Ont.

J. L. R. Parsons, Toronto, Ont.
J. E. Umbach, Ottawa, Ont.
A. Prevost, Ottawa, Ont.
S. Farley, Tetreauville, Que.
R. D. Wilson, Winnipeg, Man.
A. Findlay, Winnipeg, Man.
F. R. Smith, Ingersoll, Ont.
A. Thomson, Bendall, Ont.
C. L. Coulson, Welland, Ont.
D. H. Philp, Ottawa, Ont.
P. C. Coates, Victoria, B.C.
E. Wade, Welland, Ont.
D. A. Smith, Claude, Ont.
A. J. Campbell, Collingwood, Ont.
U. W. Christie, Chesley, Ont.
J. D. Shepley, Leamington, Ont.
J. V. Dillabough, North Williamsburg, Ont.
J. G. McMillan, Toronto, Ont.
J. C. Gardner, Niagara Falls, Ont.
W. N. Moorhouse, Toronto, Ont.
F. A. Moore, Toronto, Ont.
T. H. Plunkett, Meaford, Ont.
G. G. McNab, Kingston, Ont.
A. C. Garner, South Qu'Appelle, Assa.
M. Kimpe, Regina, Assa.

Final Examination for Commission as Dominion Land Surveyor.

H. Bigger, O.L.S., Ottawa, Ont.
W. B. Anderson, O.L.S., Ottawa, Ont.
D. D. James, O.L.S., Toronto, Ont.
M. L. Gordon, Ottawa, Ont.
R. Knight, Ottawa, Ont.
T. S. Nash, Ottawa, Ont.
G. A. Grover, Ottawa, Ont.
H. H. Moore, Toronto, Ont.
J. G. Cummings, P.L.S., Kingston, Ont.
C. Harvey, Toronto, Ont.
F. C. Swannell, P.L.S., Victoria, B.C.
A. Taylor, P.L.S., Winnipeg, Man.
J. E. Beatty, Sarnia, Ont.
J. D. McLennan, Ottawa, Ont.

Bonds for the sum of one thousand dollars each, as required by clause 115 of the Dominion Lands Act, were received from ten candidates who had passed the necessary examination for commissions as Dominion land surveyors; eleven commissions were issued. Every Dominion land surveyor is required by clause 125 of the Dominion Lands Act to be in possession of a subsidiary standard of length furnished by the secretary of the board of examiners. Fifteen such standards were issued to surveyors during the year. Twelve standards were also supplied to the British Columbia government for issue to provincial surveyors. A list of surveyors who have been furnished with standard measures to June 30, 1904, will be found in Appendix No. 4.

In order to provide for the examination of candidates at Vancouver, B.C., Mr. E. B. Hermon, Dominion land surveyor, was appointed by Order in Council of January 21, 1904, a special examiner under sub-clause 5 of clause 101 of the Dominion Lands Act. Mr. J. L. Doupe, Dominion land surveyor, of Winnipeg, Man., was also appointed a special examiner by Order in Council dated March 30, 1904.

Examination papers are submitted as Appendix No. 21.

The correspondence of the board amounted to:—

Letters received	557
Letters sent	543

APPENDICES.

The following documents are appended:—

No. 1.—Schedule of Dominion land surveyors employed, and work executed by them, from July 1, 1903, to December 31, 1903.

No. 2.—Schedule of Dominion land surveyors employed, and work executed by them, from January 1, 1904, to June 30, 1904.

No. 3.—Schedule showing for each surveyor employed during 1903, the number of miles surveyed of township subdivision lines, township outlines, traverses of lakes and rivers and resurvey, also cost of the same.

No. 4.—List of Dominion land surveyors who have been supplied with standard measures.

No. 5.—List of lots in the Yukon Territory of which surveys have been confirmed during the year ending June 30, 1904.

No. 6.—List of miscellaneous surveys in the Yukon Territory of which returns have been received during the year ending June 30, 1904.

No. 7.—Statement of work executed in the office of the chief draughtsman.

No. 8.—Statement of work performed in the survey records office for the twelve months ending June 30, 1904.

No. 9.—Statement of work executed in the photographic office during the twelve months ending June 30, 1904.

No. 10.—Statement of work executed in the lithographic office for the twelve months ending June 30, 1904.

No. 11.—Descriptions of townships in which surveys were made during the year 1903.

No. 12.—Report of P. R. A. Belanger, D.L.S.

No. 13.—Report of J. J. Dalton, D.T.S.

No. 14.—Report of L. E. Fontaine, D.L.S.

No. 15.—Report of E. W. Hubbell, D.L.S.

No. 16.—Report of A. W. Johnson, D.L.S.

No. 17.—Report of G. J. Lonergan, D.L.S.

No. 18.—Report of J. E. Ross, D.L.S.

No. 19.—Report of Arthur Saint Cyr, D.L.S.

No. 20.—Report of J. N. Wallace, D.L.S.

No. 21.—Examination papers of the board of examiners for Dominion Land Surveyors.

I have the honour to be, sir, your obedient servant,

E. DEVILLE,

Surveyor General.

SESSIONAL PAPER No. 25a

APPENDIX No. 1 TO THE REPORT OF THE SURVEYOR-GENERAL.

SCHEDULE of Dominion Land Surveyors employed, and work executed by them, from July 1, to December 31, 1903.

Surveyor.	Address.	Description of Work.
Abrey, G. B.....	Toronto, Jct., Ontario.	Contract No. 4 of 1903. The subdivision of townships 37 and 38, range 24 ; townships 41 and 42, ranges 18, 19 and 20 ; township 43, ranges 21 and 22 and townships 43 and 44, range 23, all west of the second meridian..
Aylsworth, C. F	Madoc, Ont.....	Subdivision of townships 27 and 28, range 29A. Part subdivison and survey of north outline of township 26, range 26. Remarking corners in parts of township 27 in ranges 29 and 30. Survey of the north outline of township 26, range 25, all west of the principal meridian, also resurvey of parts north and east outlines of township 10, range 11, east principal meridian.
Beatty, David	Parry Sound, Ont,...	Contract No. 11 of 1903. Subdivision of townships 41, 42, 43 and 44, ranges 10 and 11 and township 45, in ranges 9 and 10, all west of the third meridian.
Beatty, Walter.....	Delta, Ont.....	Contract No. 10 of 1903. Subdivision of townships 46 47, range 6, township 47, range 7, townships 41, 42, 43, 44 and 45, range 8 and townships 41, 42, 43 and 44, range 9, all west of the third meridian.
Bélanger, P. R. A ..	Ottawa, On.....	Renewal of corner marks during 1903 in township 26, range 30, west of the principal meridian and in township 24 in range 1, 12, 13, 14 and 15 ; township 25 in ranges 1, 2, 12, 13, 14, 15 and 16 ; township 26 in ranges 12, 13, 14, 15 and 16 ; township 27, ranges 7 and 15 ; township 28, ranges 2, 3, 6, 13, 14 and 15 ; township 29, ranges 13, 14, 15 and 16 ; township 30 ranges 13 and 14 ; township 31, ranges 9, 10, 11, 12 and 13 and township 32 in ranges 9, 10 and 11; all west of the second meridian. Traverse of Qu'Appelle river through township 19A, range 11 and part subdivision of township 26 in ranges 15 and 16, west of the second meridian.
Bolton, Lewis.....	Listowel, Ont.....	Contract No. 43 of 1903. Subdivision of townships 43, 45, 46, 47 and 48, ranges 1 and 2, west of the fourth meridian.
Bourgeault, A.. ...	St. Jean Port Joli, Que.	Contract No. 19 of 1903. Subdivision of towships 35 and 36, range 9 and township 35, range 10, all west of the second meridian. Resurvey of the north outline of township 23, range 9. Correction survey of township 24, ranges 8 and 9 and township 35, range 10, all west of the second meridian.
Bourgault, C. E....	St. Jean Port Joli, Que.	Assistant to Wm. Pearce, Chief Inspector of Surveys, during 1903.
Bowman, H. J.....	Berlin, Ont.....	Contract No. 50 of 1903. Subdivision of townships 40, 41 and 42, in ranges 24, 25 and 26, west of the third meridian.
Bray, Edgar.....	Oakville, Ont.....	Contract No. 1 of 1903. Subdivision of townships 34 and 35, ranges 1 and 2 ; survey of the east outline of township 36, range 2, all west of the second meridian.
Bray, L. T	Amherstburg, Ont.	Contract No. 33 of 1903. Subdivision of townships 39, 40, 42, 43 and 44, range 23 ; townships 43, 44 and 45, ranges 24 and 25 and townships 44 and 45, range 26, all west of the third meridian.
Carbert, J. A.....	Lacombe, Alta..	Contract No. 37 of 1903. Subdivision of townships 37, ranges 8, 9, 10, 13, 14, 15, 16 and 17, and of townships 38, ranges 11, 12, 15 and 16, all west of the fourth meridian.
Côté, J. A.....	Quebec, Que.....	Contract No. 46 of 1903. Subdivision of townships 34, 35 and 36, ranges 21, 22 and 23, all west of the second meridian.
Côté, J. L.....	Pakan, Alta.....	Contract No. 52 of 1903. Subdivision of township 59, range 16, west of the fourth meridian.
Dalton, J. J.....	Milton West, Ont....	Subdivision of part of township 52, range 15, west of the third meridian. Correction survey of part of the subdivision of township 50, range 28, west of the third meridian and of townships 49 and 50, range 1, west fourt h meridian. Survey of the townsite of Lloydminster, in sec. 2, township 50, range 28, west of third meridian. Survey of the east outline of township 50, range 18, of

APPENDIX No. 1 TO THE REPORT OF THE SURVEYOR GENERAL.

SCHEDULE of Dominion Land Surveyors employed, and work executed by them, from July 1 to December 31, 1903.—*Continued.*

Surveyor.	Address.	Description of Work.
		townships 51 and 52, ranges 16, 17, 18, 19, 20 and 21, of township 53, range 24, and of township 54. ranges 24 and 25 ; also the north outline of township 51, range 17, all west of the third meridian. Survey of east outlines of township 56, ranges 5, 6, 7 and 8, and of the 15th base line across ranges 5, 6, 7 and 8, all west of the fourth meridian.
Deans, W. J.....	Brandon, Man.....	Contract No. 16 of 1903. Subdivision of townships 45 and 46, ranges 11 and 12, west of the third meridian and township 46, range 15, west of second meridian. Survey of east boundary of townships 47 and 48, range 12, west third meridian.
Dickson, Jas.....	Fenelon Falls, Ont....	Contract No. 3 of 1903. Subdivision of townships 30, 31 and 32, range 2 and townships 31 and 32, range 1, all west of third meridian and townships 37 and 38, range 23 and township 37, range 22, west second meridian.
Driscoll, A.....	Edmonton, Alta	Contract No. 36 of 1903. Subdivision of townships 46, 47 and 48, ranges 3 and 4, west fourth meridian.
Drummond, Thos. ..	Montreal, Que..	Contract No. 23 of 1903. Subdivision of township 40, ranges 8, 9, 11, 12, 13, 14 and 15, and township 41, ranges 8, 9 and 10, all west fourth meridian.
Ducker, W. A.....	Winnipeg, Man.....	Survey of township outlines in eastern Manitoba. No returns.
Dumais, P. T. C....	Hull, Que.....	Contract No. 2 of 1903. Subdivision of townships 33, 34 and 35, ranges 6 and 7, and township 36, range 6, west second meridian.
Edwards, Geo	Ottawa, Ont.....	Survey of lots near Field, in Rocky Mountains Park of Canada. Subdivision of townships 38 and 39, ranges 7 and 8, west fourth meridian. Contract No. 60 of 1903, northwest of Red Deer. No returns.
Fairchild, C. C.....	Brantford, Ont.....	Contract No. 29 of 1903. Subdivision of townships 49 and 50, range 9, townsip 50, range 10 and townships 42 and 43, ranges 5, 6 and 7, all west of the fourth meridian.
Fawcett, Thos.....	Niagara Falls, Ont...	Contract No. 5 of 1903. Subdivision of townships 35 and 36, ranges 24, 25, 26, 27, 28 and 29, townships 37 and 38, ranges 13 and 14, the east outline of townships 39 and 40, range 15, all west of the second meridian.
Fontaine, L. E.	Levis, Que.....	Part of subdivision of townships 8, 9, 10, 11, 12, 15 and 16, range 1, and township 16, range 2, all west of the fifth meridian and of township 11, ranges 29 and 30, west of the fourth meridian.
Francis, J....	Poplar Point, Man....	Contract No. 18 of 1903. Subdivision of townships 34, 35 and 36, range 3, township 36, range 4, west second meridian.
Gordon, R. J.....	Stirling, Alta.....	Contract No. 39 of 1903. Subdivision of township 46, ranges 7, 8, 9, 10, 11 and 12, and township 48, range 5, all west of the fourth meridian.
Gore, T. S.....	Victoria, B.C.....	Contract No. 35 of 1903. Subdivision of township 50, ranges 16 and 17 ; townships 49 and 50, range 18 ; townships 48, 49, 50 and 51, range 19 ; townships 49, 50 and 51, range 20 ; townships 49 and 51, range 21, and townships 50 and 51, range 22. Survey of parts of north and east outlines of township 49, range 22, and of east outlines of township 50, ranges 19 and 20, and of towship 52, range 22, all being west of the third meridian.
Hopkins, M. W... .	Hamilton, Ont.....	Contract No. 31 of 1903. Subdivision of townships 49, 50 and 51, ranges 3 and 4, township 51, range 5, and townships 49 and 50, range 6, all west of the fourth meridian.
Hubbell, E. W.....	Ottawa, Ont.....	The renewal of corners in township 45, ranges 16, 17, 18, 20 and 21 and township 46, ranges 15, 16, 17, 18, 19 and 21, all west of the fourth meridian.
James, S.....	Toronto, Ont,.....	Contract No. 34 of 1903. Subdivision of townships 39, 40 and 41, ranges 18 and 19, township 38, ranges 18 and 21, township 41, range 17, township 35, range 21, township 42, range 19, and townships 36 and 37, range 21, all west of the third meridian.

SESSIONAL PAPER No. 25a

APPENDIX No. 1 TO THE REPORT OF THE SURVEYOR GENERAL.

SCHEDULE of Dominion Land Surveyors employed, and work executed by them, from July 1 to December 31, 1903.—*Continued.*

Surveyor.	Address.	Description of Work.
Johnson, A. W.	New Westminster, B.C.	Part subdivision of townships 5 and 6, range 1, west of the seventh meridian and of townships 16 and 17, range 21, townships 14 and 15, range 22, townships 4, 5, 6 and 7, ranges 28 and 29 and townships 4 and 6, range 30, west of the sixth meridian.
Kirk, J. A.	Revelstoke, B.C	Miscellaneous surveys in British Columbia. No returns.
Lemoine. C. E	Beauliea, Que.	Contract No. 20 of 1903. Subdivision of townships 29, 30, 31, 32 and 33, ranges 20 and 21, township 39, range 17 and part subdivision of township 38, range 17, all west of the second meridian. Survey of township outlines east of townships 29 and 40, range 18; townships 32 and 33, range 20, townships 29, 30, 31, 32 and 33, range 21, and of townships 30, 32 and 33, range 23; also north outlines of townships 28 and 32, ranges 20 and 21, all being west of the second meridian.
Lendrum, R. W.	Strathcona, Alta	Contract No. 28 of 1903. Subdivision of townships 51 and 52, ranges 9 and 10, west of the fourth meridian.
Lonergan, G. J.	Buckingham, Que.	Renewal of corners in townships 54, 55, 56 and 57, range 20, townships 56 and 57, range 21, township 57, ranges 18, 19 and 22 and township 56, range 19, all west of the fourth meridian. Traverse of Bert lake in township 57, range 23, west of the fourth meridian.
Lucas, S. B.	Ponoka, Alta.	Contract No. 24 of 1903. Subdivision of township 43, ranges 11, 12, 13 and 14, township 42, ranges 11 and 12, west of the fourth meridian and township 46, range 2, west of the fifth meridian.
Mailhiot, J. E.	Three Rivers, Que. . .	Contract No. 42 of 1903. No returns. (Mr. Mailhiot died while in the field and before doing any work.)
Martin, A. F.	Winnipeg, Man.	Contract No. 8 of 1903. Part subdivision of townships 29 and 30, range 29, subdivision of townships 29 and 30, ranges 28, 27, 26 and 24, township 30, range 25, townships 35 and 36, range 20, township 35, range 19, township 37, ranges 12, 16 and 17 and township 38, range 12, all west of the second meridian and towships 27 and 28, range 1, west of the third meridian.
Michaud, A.	Edmonton, Alta	Contract No. 27 of 1903. Subdivision of townships 51, 52, 53 and 54, range 11 and townships 53 and 54, range 12, all west of the fourth meridian. Resurvey of the east boundary of township 51, range 12, west of the fourth meridian.
Miles, C. F.	Toronto, Ont.	Contract No. 38 of 1903. Subdivision of township 41, ranges 11, 12, 13 and 15, and township 42, ranges 13, 14 and 15, all west of the fourth meridian.
Moberly, H. K.	Innisfail, Alta.	Assistant to A. Driscoll, during 1903.
Molloy, John.	Winnipeg, Man.	Contract No. 12 of 1903. Subdivision of township 44, ranges 12, 13 and 14; township 43, ranges 12, 13 and 14; township 42, range 12; township 47, range 10 and township 48, ranges 11 and 12, all west of the third meridian.
McAree. John	Toronto, Ont.	Contract No. 47 of 1903. Subdivision of townships 29, 30, 31, 32 and 33, range 22 and townships 29, 30, 31, 32, range 23, all west of the second meridian.
McFee, A.	Innisfail, Alta	Contract No. 21 of 1903. Subdivision of township 36, ranges 15, 16, 17 and 18, and of township 35, ranges 17 and 18, west of the fourth meridian.
McGrandle, H.	Huntsville, Ont.	Contract No. 25 of 1903. Subdivision of township 45, ranges 6, 7, 8, 9, 10, 11, 12, and 13 and township 46, ranges 13 and 14, all west of the fourth meridian.
McKenna, J. J. . . .	Dublin, Ont.	Contract No. 15 of 1903. Subdivision of townships 45 and 46, ranges 13 and 14, and of township 47, range 12. Survey of the north outline of township 44, ranges 13 and 14 and the east outline of townships 45 and 46, range 15, all being west of the third meridian.
McLatchie, John. . .	Nelson, B.C.	Part subdivision of township 10 in ranges 2 and 3 west of the fifth meridian.

APPENDIX No. 1 TO THE REPORT OF THE SURVEYOR GENERAL.

SCHEDULE of Dominion Land Surveyors employed, and work executed by them, from July 1 to December 31, 1903—*Continued.*

Surveyor.	Address.	Description of Work.
McLean, J. K	Elora, Ont	Survey of township outlines north of township 48, range 5, north of township 52, ranges 6 and 7, the east outlines of towship 58, range 3, townships 46, 47, 48, 57 and 58, range 4, township 51, range 5 and of townships 51 and 52, ranges 6 and 7, all west of the fifth meridian Traverse of lakes in township 52, range 2, west of the fifth meridian.
Pearce, Wm.....	Calgary, Alta.....	Chief Inspector of Surveys during 1903.
Proudfoot, H. B.....	Toronto, Ont.....	Contract No. 35 of 1903. Subdivision of township 38, ranges 12, 13, 14, 20, 23 and 24; township 39, range 14; township 37, ranges 12, 20, 23 and 24; township 36, ranges 14, 20 and 23 and township 35, ranges 13, 14, 20, 23 and 24, all west of the third meridian. Renewal of corners in township 39, range 14, west of the third meridian.
Rainboth, E. J.....	Ottawa, Ont.....	Contract No. 7 of 1903. Subdivision of townships 31 and 32, ranges 24, 25, 26, 27, 28 and 29, all west of the second meridian.
Rainboth, G. C.,....	Aylmer, Que.....	Contract No. 45 of 1903. Subdivision of townships 37, 40, 41, and 42, range 1, and townships 37, 40, 41 and 42, range 2, west of the fourth meridian, and townships 35, 36, 37, 38, 40, 41 and 42, range 28, west of the third meridian.
Reilly, W. R.....	London, Ont.....	Contract No. 13 of 1903. Subdivision of townships 47 and 48 ranges 13 and 14, and townships 52 and 53, ranges 23 and 24, all west of the third meridian.
Richard, J. F.....	Ste. Anne de la Pocatiere, Que.	Contract No. 49 of 1903. Survey of north, south and east outlines of township 33, range 8, west of the second meridian. Subdivision of townships 34, 35 and 36, range 8, west of the second meridian.
Roberts, S. A. ...	Victoria, B. C.....	Contract No. 14 of 1903. Subdivision of township 49, ranges 16 and 17, west of the third meridian.
Ross, Geo.....	Welland, Ont.....	Contract No. 51 of 1903. Subdivision of townships 41 and 42, ranges 21, 22 and 23. west of the second meridian.
Ross, J. E	New Westminster, B.C	Part subdivision of township 17, range 14, township 19 range 23 and township 18, range 25. Survey of lots 472, 518 and 520 and part subdivision in township 17, range 12. Survey of lot 518 in township 18, range 12. Survey of lots 472, 458, 460, 461 and 471 in township 17, range 13. Part subdivision and survey of trail in township 18, range 23. Part subdivision and survey of trail in township 18, range 24. Traverse of west bank of Thompson river through townships 19 and 20, range 24. Part subdivision and survey of lot 19 in township 19, range 25, part subdivision and survey of lots 14 and 376 in township 20, range 25, all this work being west of the 6th meridian.
Roy, G. P	Quebec, Que.....	Contract No. 22 of 1903. Subdivision of township 39, ranges 13, 14, 15, 16 and 17, township 38, ranges 9, 10, 13, 14 and 17, and part subdivision of township 39, range 9, all west of the fourth meridian.
Saint Cyr, A.. ...	Ottawa, Ont.....	Survey of the fourteenth base line across ranges 5 to 21 inclusive. Survey of meridian outlines east of ranges 9 and 13, through townships 49, 50, 51 and 52, west of the third meridian.
Saint Cyr, J. B.....	Ste. Anne de la Pérade, Que.	Contract No. 26 of 1903. Subdivision of township 47, ranges 6, 7, 9, 10, 11, 12, 13 and 14 and township 48, ranges 6, 8, 11 and 14, all west of the fourth meridian.
Selby, H. W.....	Toronto, Ont.	Contract No. 44 of 1903. Subdivision of townships 34, 35, 36, 37, 38, 39, 40, 41, 42 and 43, range 3, townships 35, 36, 37, 38, 39, 42, and 43, range 4, and survey of the north outline of township 34, range 4, all west of the fourth meridian.
Sewell, H. de Q....	Toronto, Ont.....	Contract No. 32 of 1903. Subdivision of township 44, ranges 1, 2, 3, 4, 5, and 6, and township 45, ranges 3 and 4, west of the fourth meridian, and township 44, ranges 27 and 28, west of the third meridian.
Turnbull, Thos..	Winnipeg, Man.....	Inspector of Surveys during 1903.

SESSIONAL PAPER No. 25a

APPENDIX No. 1 TO THE REPORT OF THE SURVEYOR GENERAL.

SCHEDULE of Dominion Land Surveyors employed, and work executed by them, from July 1 to December 31, 1903.—*Concluded.*

Surveyor.	Address.	Description of Work.
Tyrrell, J. W.....	Hamilton, Ont.....	Contract No. 41 of 1903. Subdivision of townships 35 and 36, ranges 17, 18, 19 and 22, township 37, ranges 15, 16, 17, 18, 19 and 22, township 38, ranges 15, 16, 19 and 22, and townships 39 and 40, ranges 15 and 16, all wes, of the third meridian.
Wallace, J. N	Hamilton, Ont.....	Survey of east outlines of townships 35, 36, 41 and 42 in range 6, townships 27, 28, 29, 30, 31, 33, 34, 35, 41, 42, 43 and 44, in range 7 and townshi ps 29, 30, 31, 32, 33, and 34, range 8, the north outline of township 44, range 6 and of township 32, range 7, all being west of the fifth meridian.
Warren, James	Walkerton, Ont.....	Contract No. 9, of 1903. Subdivision of townships 29 and 30, ranges 6 and 7, west of the third meridian, township 34, ranges 18, 19 and 20, and townships 25 and 26, ranges 21 and 22, west of the second meridian.
Weeks, A. S.....	Whitemouth, Man	Assistant to Thos. Turnbull, Inspector of Surveys during 1903.
Weeks, M. B.....	Brantford, Ont.. .. .	Contract No. 30 of 1903. Subdivision of townships 48, 49 and 50, range 7, townships 44, 49 and 50, range 8, and township 44, range 9, west of the fourth meridian.
Wheeler, A. O...	Calgary, Alta.....	Topographer of the Department of the Interior. Survey of the Rocky Mountains near the Canadian Pacific Railway.
Wilkins, F. W... ..	Norwood, Ont	Contract No. 40 of 1903. Subdivision of townships 39, 40, 41, 42, 43 and 44, ranges 20, 21 and 22, west of the third meridian.
Woods, J. E.....	Frank, Alta	Contract No. 6 of 1903. Subdivision of townships 33 and 34, range 24, and township 33, range 25, west of the second meridian, also townships 27 and 28, ranges 19 and 20, west of the 4th meridian.

APPENDIX No. 2 TO THE REPORT OF THE SURVEYOR GENERAL.

SCHEDULE of Dominion Land Surveyors employed, and work executed by them, from January 1, 1904, to June 30, 1904.

Surveyor.	Address.	Description of Work.
Abrey, G. B.....	Toronto Jct., Ont.....	Contract No. 10 of 1904. East of Prince Albert. No returns.
Aylen, John..... ..	Aylmer, Que.....	Contract No. 52 of 1904. Northwest of Calgary. No returns.
Aylsworth, C. F....	Madoc, Ont.....	Survey of Riverton townsite in township 23, range 4, east of the principal meridian and subdivision of township 21, range 7, west of the principal meridian.
Beatty, David.....	Parry Sound, Ont.....	Contract No. 15 of 1904. Subdivision of townships 49 and 50, range 1 and survey of east outline of townships 51 and 52, range 2, west of third meridian. Contract No. 23 of 1904. Southwest of Battleford. No returns.
Beatty, Walter.....	Delta, Ont.....	Contract No. 14 of 1904. Subdivision of township 50, ranges 26, 27 and 28, and township 51, range 27, west of third meridian. Contract No. 24 of 1904. Southwest of Battleford. No returns.
Belanger, P. R. A..	Ottawa, Ont.....	Renewal of corners in townships 24 and 25, range 10, townships 23, 24, 25 and 26, range 11 and township 23, ranges 12, 13, 14 and 15, all west of the second meridian.
Bolton, Lewis.....	Listowel, Ont.	Contract No. 29 of 1904. Northwest of Battleford. No returns.
Bourgault, C. E. ...	St. Jean Port Joli, Q..	Contract No. 43 of 1904. Subdivision of townships 51 and 52, range 4, and part subdivision of township 52, range 5, all west of the fifth meridian.
Bourgeault, A.....	" " ..	Contract No. 7 of 1904. North of Yorkton. No returns.
Bowman, H. J	Berlin, Ont.....	Contract No. 20 of 1904. Subdivision of township 30, range 18, west third meridian.
Bray, Edgar...	Oakville, Ont.....	Survey of township outlines northwest of Edmonton. No returns.
Bray, L. T.....	Amherstburg, Ont....	Retracing old subdivision surveys in Southern Manitoba. No returns.
Carbert, J. A.....	Lacombe. Alta.....	Contract No. 39 of 1904. Subdivision of township 32, range 22, west fourth meridian.
Cautley, R. W.....	Pakan, Alta	Contract No. 34 of 1904. Subdivision of township, 58, ranges 13, 14, 15, 16 and 18, and township 57, range 13, and part subdivision of township 59, range 17, all west of the fourth meridian.
Cavana, A. G.	Orillia, Ont.....	Contract No. 8 of 1904. Southeast of Prince Albert. No returns.
Cote, J. A.....	Quebec, Que.....	Contract No 18 of 1904. In the Bear Hills. South of Battleford. No returns.
Cote, J. L.....	Pakan, Alta.....	Contract No. 35 of 1904. Subdivision of township 58, ranges 19 and 20 and township 59, ranges 18 and 19, west of fourth meridian.
Craig, J. D.....	Ottawa, Ont.....	Inspector of Surveys. Eastern section.
Dalton, J. J.....	Milton West, Ont.....	Miscellaneous subdivision surveys in Southern Alberta. Part subdivision of township 22, range 9, west fourth meridian.
Dickson, Jas.....	Fenelon Falls Ont....	Contract No. 64 of 1904. Lake Dauphin district. No returns.
Drummond, Thos...	Montreal, Que.....	Contract No. 40 of 1904. Subdivision of township 57, range 3, and township 58, ranges 2 and 3, west fifth meridian.
Ducker, W. A	Winnipeg, Man. . .	Survey of outlines east of townships 7 and 8, ranges 9 and 10; parts of outlines east of townships 7 and 8, range 8 and north of township 8, range 10; survey of correction line south of township 7, ranges 8, 9 and 10 and north of township 6, ranges 9 and 10, all east of the principal meridian.
Dumais, P. T. C....	Hull, Que.....	Contract No. 4 of 1904. Lake Dauphin district. No returns.
Edwards, Geo.....	Ottawa, Ont.....	Contract No. 46 of 1904. (An extension of contract No. 60 of 1903.) Subdivision of township 41, range 5, west of fifth meridian.
Fairchild, C. C. .. .	Brantford, Ont.....	Contract No. 37 of 1904. Subdivision of township 44, ranges 11, 12, 13 and 14, west fourth meridian.
Farncomb, A. E....	Red Deer, Alta.....	Contract No. 48 of 1904. Subdivision of townships 36, 37 and 38, range 5, and township 35, range 4, west fifth meridian.
Fawcett, Adam.....	Dawson, Y. T.....	Contract No. 28 of 1904. Near Onion Lake. No returns.
Fawcett, Thos.....	Niagara Falls, Ont....	Contract No. 36 of 1904. North of Medicine Hat. No returns.

SESSIONAL PAPER No. 25a

APPENDIX No. 2 TO THE REPORT OF THE SURVEYOR GENERAL.

SCHEDULE of Dominion Land Surveyors employed, and work executed by them from January 1, 1904, to June 30, 1904.—*Continued.*

Surveyor.	Address.	Description of work.
Fontaine, L. E.....	Levis, Que.....	Survey of township outlines in Northern Alberta. West of fifth meridian. No returns.
Francis, J.....	Poplar Point, Man....	Contract No. 58 of 1904. West of Riding Mountain. Timber reserve. No returns.
Gordon, M. L.....	Ottawa, Ont.....	Contract No. 16 of 1904. Southwest of Saskatoon. No returns.
Gordon, R. J.....	Stirling, Alta	Contract No. 62 of 1904. Southeast of Lethbridge. No returns.
Gore, T. S.....	Victoria, B.C.....	Contract No. 27 of 1904. Subdivision of township 52, ranges 21 and 22, west third meridian.
Grover, G. A.....	Ottawa, Ont.....	Contract No. 17 of 1904. Southwest of Saskatoon. No returns.
Harvey, Chas.....	Toronto, Ont.....	Contract No. 5 of 1904. Part subdivision of township 34, range 27, township 33, range 28, township 32, range 29, and township 31, range 30, all west of the principal meridian.
Holcroft, H. S.....	Toronto, Ont.....	Contract No. 11 of 1904. Subdivision of township 46, range 14, west second meridian.
Hopkins, M. W.....	Hamilton, Ont.....	Contract No. 56 of 1904. East of Edmonton. No returns.
Hubbell, E. W.....	Ottawa, Ont.... .. .	Renewal of corners in township 50, ranges 27 and 28, west fourth meridian and in township 50, range 1, west fifth meridian.
Johnson, A. W.....	New Westminster, B.C.	Surveys near Harrison Lake in British Columbia. No returns.
Kirk, J. A.....	Revelstoke, B.C.....	Miscellaneous surveys in British Columbia. No returns.
Knight, R. H.....	Bruce Mines, Ont.....	Contract No. 54 of 1904. Subdivison of townships 31 and 32, range 28, west of principal meridian.
Lemoine, C. E.....	Beaulieu, Que.....	Contract No 9 of 1904. East of Saskatoon. No returns.
Lendrum, R. W....	Strathcona, Alta.....	Contract No. 31 of 1904. East of Edmonton. No returns.
Lonergan, G. J.	Buckingham, Que.....	Work in Edmonton district. Renewal of corners in township 48, ranges 24 and 25, west fourth meridian.
Martin, A. F.....	Winnipeg, Man.....	Contract No. 63 of 1904. South of Moose Jaw. No returns.
Michaud, A.....	Edmonton, Alta....	Contract No. 33 of 1904. Subdivision of township 53, range 10, west fourth meridian.
Miles, C. F.....	Toronto, Ont.....	Contract No. 51 of 1904. Northwest of Calgary. No returns.
Molloy, J.....	Winnipeg, Man.....	Contract No. 3 of 1904. Subdivision of township 1, range 14, east of principal meridian.
McLean, J. K.....	Elora, Ont.....	Survey of township outlines north of Edmonton. No returns.
Nash, T. S.....	Ottawa, Ont.....	Inspector of Surveys, 1904. Western central section.
O'Hara, W. F	Ottawa, Ont.....	Contract No. 45 of 1904. Southwest of Edmonton. No returns.
Phillips, E. H	Ottawa, Ont.....	Inspector of Surveys, 1904. Eastern central section.
Ponton, A. W.....	Macleod, Alta	Contract No. 50 of 1904. Northwest of Calgary. No returns.
Proudfoot, H. B....	Toronto, Ont.....	Contract No. 53 of 1904. Subdivision of towships 32, 33, 34 and 35, range 5; trownship 34, range 4 and township 32, range 6, all west of the fifth meridian.
Rainboth, G. C.....	Aylmer, Que.....	Contract No. 25 of 1904. West of Saskatoon. No returns.
Reilly, W. R.....	London, Ont	Contract No. 13 of 1904. Northeast of Saskatoon. No returns.
Richard, J. F.....	Saint Anne de la Pocatiere, Que.	Contract No. 6 of 1904. North of Fort Pelly. No returns.
Rinfret, Raoul.....	Edmonton, Alta	Contract No. 41 of 1904. Subdivision of township 56, ranges 1, 2 and 3, and survey of north outline of township 55, range 3, all west of fifth meridian.
Ross, Geo.....	Welland, Ont.....	Contract No. 22 of 1904. West of Saskatoon. No returns.
Ross, J. E.....	New Westminster, B.C.	Part subdivision of township 19, range 15, township 21, range 17, township 13, range 23, and traverse of part of Shuswap lake and part subdivision of township 21, range 8, traverse of part of Thompson river in trownship 20, range 17, survey of limit of Railway Belt, through township 14, range 22, part subdivision and traverse along Nicola river in townships 14 and 15, range 23 and traverse along Nicola river through townships 15, 16 and 17, range 24, and township 17, range 25, all west of sixth meridian.
Roy, G. P	Quebec, Que.....	Contract No. 42 of 1904. Subdivision of townships 51 and 53, range 5 and part subdivision of township 51, range 6, west fifth meridian.
Saint Cyr, A.....	Ottawa, Ont.....	Survey of township outlines in Peace river district. No returns.

APPENDIX No. 2 TO THE REPORT OF THE SURVEYOR GENERAL.

SCHEDULE of Dominion Land Surveyors employed and work executed by them, from January 1, 1904, to June 30, 1904—*Concluded.*

Surveyor.	Address.	Description of Work.
Saint Cyr, J. B.....	Ste. Anne de la Pérade, Que.....	Contract No. 32 of 1904. East of Edmonton. No returns.
Saunders, B. J.....	Regina, Assa.....	Contract No. 2 of 1904. Subdivision of townships 45 and 46, rauge 3, and part subdivision of township 47, range 3, west fifth meridian.
Selby, H. W.....	Toronto, Ont.....	Contract No. 49 of 1904. Subdivision of township 35, ranges 6 and 7, and part subdivision of township 36, range 7, west fifth meridian. Survey of township outlines in the Peace river district. No returns.
Thompson, W. T....	South Qu'Appelle, Assa	Contract No. 55 of 1904. Part subdivision of townships 26 and 28, range 16, subdivision of township 27, and 27A, range 16 and township 27, range 15, survey of south and west outlines of township 27A, range 15, west of second meridian.
Tyrrell, J. W	Hamilton, Ont.....	Contract No. 26 of 1904. West of Saskatoon. No returns.
Wallace, J. N	Hamilton, Ont	Survey of township outlines in the Peace river district. No returns.
Warren, James.....	Walkerton, Ont	Contract No. 19 of 1904. South of Battleford. No returns.
Watt, B. H.....	Ottawa, Ont..... ..	Inspector of Surveys, 1904. Western section.
Weekes, A. S.....	Glencoe, Ont.	Contract No. 1 of 1904. Subdivision of township 10, range 11, east principal meridian. Contract No. 21 of 1904. South of Battleford. No returns.
Weekes, M. B.....	Brantford, Ont.	Contract No. 30 of 1904. Subdivision of township 56, range 5, west fourth meridian.
Wheeler, A. O.....	Calgary, Alta	Topographer of the Department of the Interior. Survey of Rocky Mountains near the Canadian Pacific Railway.
Wilkins, F. W.....	Norwood, Ont.....	Contract No. 38 of 1904. Southeast of Edmonton. No returns.

APPENDIX No. 3 TO THE REPORT OF THE SURVEYOR GENERAL.

SCHEDULE showing for each surveyor employed during 1903, the number of miles surveyed of township subdivision lines, township outlines, traverse of lakes and rivers, and resurvey; also cost of same.

Surveyor.	Miles of Subdivision.	Miles of Outlines.	Miles of Traverse.	Miles of Re-survey.	Total Mileage.	Total cost.	Cost per mile.	Method of execution.
						$ cts.	$ cts.	
Abrey. G. B.	791·34	6·00	186·18	23·00	1,006·52	17,112 17	17 00	Contract.
Aylsworth, C. F	38·00	12·00	.....	82·50	132·50	6,500 00	49 05	Day work.
Beatty, David	473·04	6·00	51·93	16·02	546·99	7,268 71	13 28	Contract.
Beatty, Walter	440·70	.....	182·13	23·00	645·83	8,661 17	13 41	"
Bélanger, P. R. A	28·00	.....	6·00	3,100·00	3,134·00	18,813 01	6 00	Day work.
Bolton, Lewis	424·66	.....	51 75	114·00	590·41	5,932 59	10 05	Contract.
*a*Bourgault, C. E	.....	.....	.....	.....	.....	2,087 00	.....	Day work.
Bourgeault, A	193·90	.....	42·29	157·61	393·80	7,560 84	19 20	Contract.
Bowman, H. J	420·30	.....	159·89	15·55	595·74	6,034 63	10 13	"
Bray, Edgar	204·00	18·04	14·40	.....	236·44	6,692 10	28 30	"
Bray, L. T	633·95	.....	78·49	23·05	735·49	6,350 16	8 63	"
Carbert, J. A	571·06	.....	52·43	4·00	627·49	5,300 64	8 45	"
Côté, J. A	415 76	.....	38·77	62·76	517·29	8,499 80	16 43	"
Côté, J. L	48·30	.....	.....	2·00	50·30	1,446 70	28 76	"
Dalton, J. J	6·00	144·50	.....	22·00	172·50	6,950 97	40 29	Day work.
Deans, W. J	175·48	12·08	14·80	42·00	244·36	3,533 26	14 45	Contract.
Dickson, Jas	523·31	.....	26·09	4·00	553·40	4,631 77	8 37	"
Driscoll, A	408·24	5·94	63·56	24·00	501·74	6,769 33	13 51	"
Drummond, Thos.	527·11	.....	120·93	84·00	732·04	9,865 61	13 48	"
Ducker, W. A	.....	75·50	.....	.....	75·50	2,876 00	38 09	Day work.
Dumais, P. T. C	413·05	24·00	37·52	26·00	500·57	13,936 16	27 84	Contract.
Edwards, Geo	217·96	.....	11·20	1·00	230·16	1,996 84	8 67	"
Fairchild, C. C	607·74	.....	92·81	48·16	748·71	8,566 18	11 44	"
Fawcett, Thos	642·99	12·73	159·93	.....	815·65	9,604 12	11 77	"
Fontaine, L. E	233·00	6·00	.....	.....	239·00	7,728 75	32 33	Day work.
Francis, J	235·85	18·00	.....	.....	253·85	6,531 71	25 73	Contract.
Gordon, R. J	365·62	.....	37·36	.....	402·98	3,849 88	9 55	"
Gore, T. S	746·69	24·13	74·78	77·88	923·48	16,039 12	17 37	"
Hopkins, M. W	540·98	.....	86·39	6·00	633·37	6,674 27	10 53	"
Hubbell, E. W	.....	.....	.....	91·50	91·50	5,755 00	62 89	Day work.
James, S	728·24	.....	102·15	15·00	845·39	6,415 49	7 59	Contract.
Johnson, A. W	85·00	.....	81·00	.....	166·00	9,055 80	54 55	Day work.
Kirk, J. A	6·00	.....	2·00	.....	8·00	525 00	65 62	"
Lemoine, C. E	686·86	.....	61·45	102·65	850·96	10,625 66	12 48	Contract.
Lendrum, R. W	194·95	6·00	19 09	36·00	256·04	5,344 30	20 87	"
Lonergan, G. J	.....	.....	5·00	301·00	306·00	8,570 10	28 00	Day work.
*b*Lucas, S. B	402·00	.....	.....	.....	402·00	2,529 00	.....	Contract.
*c*Mailhiot, J. E	.....	.....	.....	.....	.....	660 00	.....	"

APPENDIX No. 3 TO THE REPORT OF THE SURVEYOR GENERAL—*Con.*

SCHEDULE showing for each surveyor employed during 1903, the number of miles surveyed of township subdivision lines, township outlines, traverse of lakes and rivers, and resurvey; also cost of same—*Concluded.*

Surveyor.	Miles of Subdivision.	Miles of Outlines.	Miles of Traverse.	Miles of Re-survey.	Total Mileage.	Total cost.	Cost per mile.	Method of execution.
						$ cts.	$ cts.	
Martin, A. F	939·89	12·00	36·51	81·00	1,069·40	16,111 87	15 07	Contract.
Michaud, A	287·03	.....	129·71	40·00	456·74	9,798 94	21 45	"
Miles, C. F	389·08	.....	8·41	84·00	481·49	4,906 65	10 19	"
Molloy, John	424·06	.....	29·01	72·00	525·07	7,729 17	14 72	"
McAree, John	469·57	.....	22·19	.....	491·76	3,588 03	7 30	"
McFee, A	250·94	.....	40·95	2·00	293·89	2,437 03	8 29	"
McGrandle, H	583·50	.....	100·39	80·00	763·89	9,254 82	12 12	"
McKenna, J. J	224·18	.....	26·93	66·20	317·31	4,516 85	14 23	"
McLatchie, John	11·00	2·00	4·90	.....	17·90	341 10	19 07	"
McLean, J. K	.....	83·00	13·00	.....	96 00	8,237 03	85 80	Day work.
Proudfoot, H. B.	1,404·80	.....	253·72	22·00	1,680·52	13,442 71	8 00	Contract.
Rainboth, E. J	446·67	.....	51·00	45·00	542·67	4,342 49	8 02	"
Rainboth, G. C	850·31	.....	172·47	35·00	1,057·78	9,311 17	8 80	"
Reilly, W. R	439·64	6·00	40·82	6·00	492·46	7,113 64	14 44	"
Richard, J. F	151·45	24·00	2·46	18·00	195·91	5,828 37	29 75	"
Roberts, S. A	84·45	.....	.....	23·00	107·45	2,572 32	23 94	"
Ross, Geo	233·20	.....	141·11	.....	374·31	7,869 64	21 02	"
Ross, J. E	110·00	.....	135·00	.....	245·00	7,718 71	31 50	Day work.
Roy, G. P	593·84	.....	64·00	36·50	694·34	8,162 26	11 75	Contract.
Saint Cyr, A	.....	154·00	.....	.....	154·00	9,407 47	61 08	Day work.
Saint Cyr, J. B	576·85	.....	88·44	62·00	727·29	9,101 10	.....	Contract.
Selby, H. W	927·68	12·11	180·92	14·00	1,134·71	11,019 09	9 71	"
Sewell, H. de Q	433·28	.....	127·87	1·00	562·15	7,041 75	12 53	"
Tyrrell, J. W	1,194·59	.....	261·41	80·43	1,536·43	13,058 36	8 50	"
Wallace, J. N	.....	157·00	.....	.....	157·00	8,296 73	52 84	Day work.
Warren, Jas	571 82	12·00	18·74	30·00	632·56	5,567 19	8 80	Contract.
*a*Weekes, A. S	.....	.....	.....	.....	.....	1,801 00	.....	Day work.
Weekes, M. B	388·14	.....	59·45	60·00	507·59	5,822 11	11 47	Contract.
*d*Wheeler, A. O	.....	.....	.....	.....	.....	4,931 00	.....	Day work.
Wilkins, F. W	853·73	.....	75·22	26·00	954·95	7,405 42	7 75	Contract.
Woods, J. E	712·01	.....	105·43	1·00	818·44	6,789 62	8 29	"
	25,981·79	833·03	4,050·38	5,389·81	36,255·01	490,817 48	.....	

Total mileage	36,255·01
Total cost	$490,817 48
Cost per mile	13 54

a Assistant inspector of surveys. *b* Final returns not received, figures are estimated. *c* No survey made, died before commencing work. *d* Topographical survey of the Rocky Mountains and Yoho Parks.

SESSIONAL PAPER No. 25a

APPENDIX No. 4 TO THE REPORT OF THE SURVEYOR GENERAL.

List of Dominion Land Surveyors who have been supplied with Standard Measures.

Name.	Address.	Date of Appointment.	Remarks.
Abrey, G. B	Toronto Jct., Ont	April 14, '72	
Austin, G. F	Dewdney, Alta	" 14, '72	
Aylen, J	Aylmer, Que	May 29, '85	
Aylsworth, C. F	Madoc, Ont	" 17, '86	
Barwell, C. S. W	Dawson, Yukon Territory	Aug. 21, '94	
Bayne, G. A	Winnipeg, Manitoba	April 14, '72	
Beatty, D	Parry Sound, Ont	" 14, '72	
Beatty, W	Delta, Ont	" 14, '72	
Belanger, P. R. A	Ottawa, Ont	May 17, '80	Surveys Staff Dept. of the Interior.
Belleau, J. A	"	" 15, '83	" " "
Bigger, C. A	"	Mar. 30, '82	Astronomer " "
Bolton, L	Listowel, Ont	April 14, '72	
Boswell, E. J	Winnipeg, Man	Feb. 18, '03	
Bourgeault, A	St. Jean Port Joli, Que	Mar. 29, '83	
Bourgault, C. E	" "	Feb. 21, '88	
Bourget, C. A	Ste. Adelaide de Pabos, Que.	May 14, '84	
Bourne, R	Fort Rouge, Winnipeg, Man.	June 17, '75	
Bowman, H. J	Berlin, Ont	Feb. 16, '88	
Brabazon, A. J	Medicine Hat, Assa	May 12, '82	District Engineer, N.W.T.
Bray, S	Ottawa, Ont	Nov. 14, '83	Department of Indian Affairs.
Bray, E	Oakville, Ont	April 14, '72	
Bray, L. T	Amherstburg, Ont	Feb. 18, '03	
Brodie, S	Fort Qu'Appelle, Assa	April 14, '72	
Brownlee, J. H	Victoria, B. C	" 15, '87	
Burke, W	Minnedosa, Man	" 14, '72	
Burnet, H	Victoria, B.C	June 22, '85	
Burwell, H. M	Vancouver, B.C	Feb. 17, '87	
Carbert, J. A	Sault Ste. Marie, Ont	May 12, '80	
Carroll, C	Prince Albert, Sask	April 14, '72	District Engineer, N.W.T.
Cautley, R. W	Dawson, Yukon Territory	Sept. 2, '96	
Cavana, A. G	Orillia, Ont	Nov. 16, '76	
Charlesworth, L. C	Regina, Assa	Feb. 27, '03	
Cleveland, E. A	Vancouver, B.C	June 27, '99	
Côte, J. A	Quebec, Que	May 14, '84	
Côte, J. L	Dawson, Yukon Territory	Mar. 21, '90	
Cotton, A. F	New Westminster, B.C	May 11, '80	
Craig, J. D	Ottawa, Ont	Feb. 24, '02	Inspector of Surveys Dept. Interior.
Dalton, J. J	Milton, Ont	April 17, '79	Dominion Topographical Surveyor.
Deans, W. J	Brandon, Man	May 13, '86	
Dennis, J. S	Calgary, Alta	Nov. 19, '77	Dominion Topographical Surveyor, Inspector of Irrigation and British Columbia Land Commissioner, C. P. R.
Denny, H. C	"	April 1, '82	
Desmeules, J. C	Murray Bay, Que	" 14, '72	
Dickson, H. G	Whitehorse, Yukon Territ'y.	Mar. 19, '89	
Dickson, J	Fenelon Falls, Ont	April 14, '72	
Doupe, J	Winnipeg, Man	" 14, '72	
Doupe, J. L	"	Oct. 6, '88	Asst. Land Commissioner, C. P. Ry.
Drewry, W. S	Victoria, B.C	Nov. 14, '83	
Driscoll, A	Edmonton, Alta	Feb. 23, '87	District Engineer, N.W.T.
Drummond, T	Montreal, Que	June 24, '78	Dominion Topographical Surveyor
DuBerger, C. C	Waterloo, Que	Nov. 17, '81	
Ducker, W. A	Winnipeg, Man	Mar. 30, '83	Swamp Lands Commissioner.
Dumais, P. T. C	Hull, Que	" 29, '82	
Edwards, G	Thurso, Que	April 14, '72	
Ellacott, C. H	Regina, Assa	Feb. 22, '99	
Fairchild, C. C	Simcoe, Ont	" 20, '01	
Farncomb, A. E	Regina, Assa.	Mar. 12, '02	
Fawcett, T	Niagara Falls, Ont.	Nov. 18, '76	Dominion Topographical Surveyor.
Fawcett, A	Dawson, Yukon Territory	Feb. 22, '93	
Fitzpatrick, J. D. A	Kildare, Que.	" 23, '87	
Fontaine, L. E	Lévis, Que	Aug. 13, '92	
Foster, F. L	Toronto, Ont	" 14, '72	
Francis, J	Poplar Point, Man	June 17, '75	
Garden, J. F	Vancouver, B.C	May 13, 80	
Garden, G. H	Lethbridge, Alta	April 14, '72	

APPENDIX No. 4 TO THE REPORT OF THE SURVEYOR GENERAL—*Con.*

List of Dominion Land Surveyors who have been supplied with Standard Measures—*Continued.*

Name.	Address.	Date of Appointment.	Remarks.
Garden, C	Winnipeg, Man	April 14, '72	
Gauvreau, L. P	Quebec, Que	" 14, '72	
Gibbon, J	Dawson, Yukon Territory	Feb. 12, '91	
Gordon, M. L	Toronto, Ont	" 18, '04	
Gordon, R. J	Stirling, Alta	Mar. 12, '02	
Gore, T. S	Victoria, B.C	April 19, '79	
Green, T. D	Dawson, Yukon Territory	May 19, '84	
Grover, G. A	Kingston, Ont	Feb. 18, '04	
Harris, J. W	Winnipeg, Man	April 14, '72	City Surveyor, Winnipeg.
Harvey, C	Indian Head, Assa	Feb. 17, '04	
Henderson, W	Chilliwack, B.C	Nov. 17, '83	
Holcroft, H. S	Toronto, Ont	Feb. 18, '03	
Hopkins, M. W	Hamilton, Ont	" 20, '01	
Hubbell, E. W	Ottawa, Ont	May 19, '84	Surveys Staff, Dept. of the Interior.
James, S	Toronto, Ont	April 14, '72	
Jephson, R. J	Dawson, Yukon Territory	May 12, '80	
Johnson, A. W	Kamloops, B.C	Mar. 12, '02	
Kirk, J. A	Revelstoke, B.C	May 11, '80	
Klotz, O. J	Ottawa, Ont	Nov. 19, '77	Dom. Topograph. Surveyor, Astronomer, Department of the Interior.
Knight, R	Bruce Mines, Ont	Feb. 18, '04	
Latimer, F. H	Detroit, Mich	" 13, '85	
Laurie, R. C	Battleford, Sask	April 27, '83	District Engineer, N.W.T.
Lawe, H	Winnipeg, Man	" 14, '72	
Lemoine, C. E	Quebec, Que	Mar. 31, '82	
Lendrum, R. W	Edmonton, Alta	May 15, '80	
Lonergan, G. J	Buckingham, Que	Feb. 28, '01	
Lucas, S. B	Ponoka, Alta	April 14, '72	
Lumsden, H. D		" 14, '72	
MacPherson, C. W	Dawson, Yukon Territory	Mar. 7, '00	
Magrath, C. A	Lethbridge, Alta	Nov. 16, '81	Dominion Topographical Surveyor, Land Commissioner, Alberta Railway and Coal Co.
Malcolm, L	Blenheim, Ont	April 14, '72	
Martin, A. F	Winnipeg, Man	" 14, '72	
Michaud, A	Montreal, Que	Feb. 18, '03	
Miles, C. F	Rat Portage, Ont	April 14, '72	
Moberly, H. K	Innisfail, Alta	Feb. 27, '03	
Molloy, J	Rosser, Man	April 14, '72	
Moore, H. H	Tp. York, Ont	Feb. 17, '04	
McArthur, J. J	Ottawa, Ont	" 17, '79	
McFadden, M	Neepawa, Man	" 14, '72	
McFee, A	Innisfail, Alta	" 19, '79	
McGrandle, H	Huntsville, Ont	May 30, '83	
McKenna, J. J	Dublin, Ont	April 14, '72	
McKenzie, J	New Westminster, B.C	Nov. 18, '88	Dominion Lands Agent, New Westminster.
McLatchie, J	Nelson, B.C	April 14, '72	
McLean, J. K	Elora, Ont	" 1, '82	
McPherson, A. J	Dawson, Yukon Territory	Feb. 21, '01	
McPhillips, G	Windsor, Ont	June 17, '75	
McVittie, A. W	Blairmore, Alta	Mch. 12, '02	
Nash, T. S	Morrisburgh, Ont	Feb. 18, '04	Inspector of Surveys, Dept. of Interior.
Ogilvie, W	Ottawa, Ont	April 14, '72	
O'Hara, W. F	Chatham, Ont	Feb. 19, '95	
Patrick, A. P	Calgary, Alta	Nov. 19, '77	Dominion Topographical Surveyor.
Pearce, W	Calgary, Alta	May 10, '80	
Phillips, E. H	Minden, Ont	Feb. 24, '02	Inspector of Surveys, Dept of Interior
Proudfoot, H. B	Toronto, Ont	Mch. 28, '82	
Rainboth, E. J	Aylmer, Que	May 19, '81	
Rainboth, G. C	Aylmer, Que	April 14, '72	
Ralph, Wm		" 14, '72	
Reid, J. L	Prince Albert, Sask	" 14, '72	
Reilly, W. R	London, Ont	Nov. 17, '81	
Richard, J. F	Ste. Anne de la Pocatière, Q.	May 13, '82	
Rinfret, R	Dawson, Y. T	Feb. 20, '00	

SESSIONAL PAPER No. 25a

APPENDIX No. 4 TO THE REPORT OF THE SURVEYOR GENERAL—*Con.*

List of Dominion Land Surveyors who have been supplied with Standard Measures—*Concluded.*

Name.	Address.	Date of Appointment.	Remarks.
Ritchie, J. F.	Nelson, B.C.	Jan. 7, '89	
Robertson, H. H.	Montmagny, Que	April 14, '72	
Roberts, S. A.	Victoria, B. C	May 16, '85	
Roberts, V. M	Sturgeon Falls, Ont	" 17, '86	
Robinson, F. J	Macleod, Alta	Feb. 20, '00	District Engineer, N.W.T.
Rombough, M. B	Morden, Man	April 14, '72	
Rorke, L. V	Sudbury, Ont	Aug. 13, '91	
Ross, G	Welland, Ont	Nov. 21, '82	
Ross, J. E	New Westminster, B.C.	Feb. 12, '91	
Roy, G. P.	Quebec, Que	Nov. 17, '81	
Saint-Cyr, J. B.	Ste-Anne de la Pérade, Que.	Feb. 17, '81	
Saint-Cyr, A	Ottawa, Ont	" 17, '87	
Saunders, B. J	Regina, Assa	Nov. 16, '84	
Seager, E.	Rat Portage, Ont	April 14, '72	
Selby, H. W	Wabigoon, Ont	Nov. 15, '82	
Sewell, H. de Q.	Toronto, Ont	May 16, '85	
Shaw, C. A. E	Victoria, B.C	" 10, '80	
Speight, Thos	Toronto, Ont	Nov. 16, '82	
Starkey, S. M.	Starkey's P.O., N.S	April 14, '72	
Stewart, G. A.	Calgary, Alta	" 14, '72	
Stewart, L. B.	Toronto, Ont	Nov. 22, '82	Dominion Topographical Surveyor; Professor, School of Practical Science, Toronto.
Stewart, E.	Ottawa, Ont	April 14, '72	Chief Inspector of Timber & Forestry.
Talbot, A. C.	Calgary, Alta	May 13, '80	District Engineer, N.W.T.
Thompson, W. T.	Fort Qu'Appelle, Assa.	Nov. 19, '77	Dominion Topographical Surveyor and District Engineer, N.W.T.
Tremblay, A. J.	Les Eboulements, Que.	Feb. 18, '90	
Towle, C. E.	Waterloo, Que.	April 14, '72	
Turnbull, T.	Winnipeg, Man	Mch. 29, '82	
Tyrrell, J. W.	Hamilton, Ont	Feb. 16, '87	
Vaughan, J. W.	Vancouver, B.C	June 11, '78	
Vicars, J	New Westminster, B.C.	May 17, '86	
Wallace, J. N.	Hamilton, Ont	Feb. 20, '00	
Warren, J.	Walkerton, Ont.	April 14, '72	
Watt, G. H	Ottawa, Ont	Feb. 24, '02	Inspector of Surveys, Dept. Interior.
Weekes, A. S.	Clinton, Ont	Feb. 11, '92	
Weekes, M. B.	Brantford, Ont.	" 18, '03	
Wheeler, A. O.	Calgary, Alta	Nov. 21, '82	Topographer of the Dept. Interior.
White-Fraser, G.W.R.	Dawson, Yukon Territory	Feb. 21, '88	Dominion Topographical Surveyor.
Wiggins, T. H.	Regina, Assa	Feb. 18, '96	
Wilkins, F. W.	Norwood, Ont	May 18, '81	Dominion Topographical Surveyor.
Wilkinson, W. D.	Toronto, Ont	Feb. 22, '93	
Woods, J. E.	Frank, Alta	Nov. 14, '85	

APPENDIX No. 5 TO THE REPORT OF THE SURVEYOR GENERAL.

List of lots in the Yukon Territory of which Surveys have been confirmed during the year ending June 30, 1904.

GROUP No. 1.

Lot No.	Area in Acres.	Surveyor.	Year of Survey.	Date of Approval.	Claimant.	Remarks.
32	40·00	T. D. Green	1903	May 15, '04	Siener Carlson & Johans'n	
33	Road.	" "	1903	" 15, '04	Falcon Joslin & J. A. Williams.	
34	10·00	" "	1903	" 15, '04	Falcon Joslin.....	

GROUP No. 2.

55	27·459	A. J. McPherson..	1903	May 4, '04	N.W.M.P. Reserve....	
122	19·69	Geo. White-Fraser	1903	Dec. 11, '03	A. L. Stephens & A. H. Anderson	
168	29·42	Raoul Rinfret.....	1903	Oct. 6, '03	R. Auzias Turenne	
169	21·13	" " ...	1903	Sept. 8, '03	G. V. Stevens	
170	6·226	Geo. White-Fraser	1902-04	May 25, '04	E. Vachon.....	
171	51·6	Adam Fawcett ...	1904	Mar. 16, '04	Phil. S. Wilkins.....	
172	50·7	" "	1904	" 16, '04	" "	
175	19·12	T. D. Green	1900	July 2, '03	Lars. Netland, R. R. Campbell & A. J. Bannerman	
181	51·65	"	1901	Dec. 11, '03	H. G. Blankman, J. C. Phillip & D. W. Cullen	Cancelled at request of Director of Surveys Dec. 12, 1903.
182	44·63	"	1901	Nov. 24, '03	D. W. Cullen.	
213	44·37	R. J. Jephson	1903	Sept. 8, '03	F. A. Cleveland.....	
214	50·62	" "	1903	" 8, '03	Mrs. J. Cleveland.	
229	9·7	Jas. Gibbon.	1903	May 4, '04	Thos. Wilson.....	
239	2·343	A. J. McPherson..	1903	Oct. 19, '03	.....	Addition to Bonanza Townsite.
240	7·023	" " .	1903	" 19, '03	.....	Addition to Bonanza Townsite.
246	45·14	T. D. Green.....	1904	June 27, '04	Louis A. Herdt.	
247	42·07	Adam Fawcett....	1903	Sept. 10, '03	F. G. Fleming.....	
248	50·6	" "	1903	July 24, '03	H. Pinkiert & C. M. Preitz..... ...	
249	51·09	" "	1903	" 24, '03	F. W. Arnold, G. M. Hill & H. Pinkiert	
257	10·00	Geo. White Fraser.	1903	Dec. 10, '03	John Young.....	
260	80·00	Adam Fawcett....	1903	Sept. 21, '03	John P. Snyder.....	
262	55·75	Raoul Rinfret. ...	1903	Nov. 9, '03	R. Auzias Turenne.....	
263	2·21	R. J. Jephson	1903	Mar. 23, '04	Antone Vernurier.....	
264	1·805	" "	1903	" 23, '04	" "	
266	46·22	A. Fawcett.....	1903	Sept. 16, '03	N. E. King.....	
267	44·22	"	1903	" 16, '03	L. B. Smith.....	
268	43·07	"	1903-04	Apl. 25, '04	Fred. Elliot	
269	51·1	"	1903	Sept. 21, '03	Laura B. Smith.....	
270	51·65	"	1903	" 21, '03	Joseph T. Moore.....	
271	20·00	"	1903	" 8, '03	Robert Riddel.....	
273	46·31	"	1903	" 21, '03	E. D. Blanchfield.	
274	47·0	"	1903	Dec. 7, '03	W. J. Dernier.....	
275	17·0	R. J. Jephson .. .	1903	Feb. 6, '04	H. McDougal.....	
276	36·26	" "	1903	" 6, '04	R. H. Cavill.....	
281	51·65	T. D. Green.....	1903	Jan. 11, '04	M. R. Boyd & C Lowney	
282	2·32	R. J. Jephson	1903	Dec. 16, '03	Hugo Brachfeld.....	
283	18·7	Adam Fawcett....	1904	May 25, '04	Laura B. Smith.....	
284	51·46	R. J. Jephson	1903	" 25, '04	" "	

SESSIONAL PAPER No. 25a

APPENDIX No. 5 TO THE REPORT OF THE SURVEYOR GENERAL.

List of lots in the Yukon Territory of which Surveys have been confirmed during the year ending June 30, 1094.—*Concluded.*

GROUP No. 5.

Lot No.	Area in Acres.	Surveyor.	Year of Survey.	Date of Approval.	Claimant.	Remarks.
58	51·65	H. G. Dickson...	1903	Sept. 21, '03	W. G. McGee & Robert Lowe.....	
59	51·65	" "	1903	" 21, '03	J. Lauderdale & W. G. McGee.....	
60	29·03	" "	1903	" 21, '03	W. G. McGee, Robt. Lowe & J. Lauderdale.	

GROUP No. 7.

4	160·00	A. J. McPherson..	1903	May 9, '04	Indian Reserve.....	
5	160·00	" " .	1903	" 9, '04	" "	
6	41·94	C. W. MacPherson	1903	Feb. 25, '04	N.W.M.P. Reserve.....	

GROUP No. 10.

7	19·96	Adam Fawcett....	1903	Aug. 12, '03	Otto Zitska.....	
8	160·00	" "	1903	" 15, '03	"	
9	160·09	" "	1903	" 14, '03	"	
10	119·38	R. J. Jephson	1903	Dec. 18, '03	Mrs. E. J. Miller.....	
11	160·43	" "	1903	" 18, '03	" "	
12	38·1	" "	1903	" 11, '03	N.W.M.P. Reserve.....	
14	80·0	" "	1903	" 18, '03	Chas. H. Maas.....	

GROUP No. 13.

3	40·03	Raoul Rinfret....	1903	Nov. 9, '03	Thomas Smith.....	

APPENDIX No. 6 TO THE REPORT OF THE SURVEYOR GENERAL.

LIST of miscellaneous surveys in the Yukon Territory of which returns have been received during the year ending June 30, 1904.

Description of Survey.	Surveyor.	Year.
Base lines on Little Skookum &c. tributaries of Bonanza creek..	C. W. MacPherson....	1901
" Allgold creek.....	Jas. Gibbon	1902
" Bear creek.....	"	1902
" Duncan creek, &c	A. J. McPherson	1903
" "	Raoul Rinfret.....	1902-03
" part of Hunker creek, &c	Jas. Gibbon	1901-02
" Gold Run creek, &c.....	C. W. MacPherson....	1901-02
" Montana creek, &c.....	" "	1902
" Keystone creek, &c.	A. J. McPherson	1903
" Christal creek.....	"	1903
Survey of Last Chance road.....	Jas. Gibbon	1902
" public road to Copper King mineral claim.....	H. G. Dickson.....	1903
Reference traverse at Whitehorse.....	"	1903
Survey of public road to Grafter mineral claim.....	"	1903
Base lines on Haggart and Dublin creeks.....	A. J. McPherson	1903
" part of Bonanza creek.....	C. W. MacPherson....	1901
Survey of part of Bonanza road.....	" "	1902
" Hunker road	Jas. Gibbon	1902*
" Goldbottom road.....	"	1902
" road from Summit of Hunker to Dominion creek, &c..	"	1902
Base lines on Thistle creek, &c.....	A. J. McPherson	1902
" on part of Bonanza creek.....	"	1901
" Livingstone, Summit lake, &c.....	C. W. MacPherson....	1902

* In four sections.

SESSIONAL PAPER No. 25a

APPENDIX No. 7 TO THE REPORT OF THE SURVEYOR GENERAL.

STATEMENT of work executed in the office of the chief draughtsman.

Returns of surveys examined—	
Township subdivision	640
Township outlines	149
Mineral claims	14
Correction and other miscellaneous surveys	97
Township plans completed for printing	490
Preliminary township plans prepared	140
Preliminary township plans received from inspectors	450
Proofs of plans examined	569
Outline sketches prepared	1,799
Plans of Yukon lots received	55
Plans of miscellaneous Yukon surveys received	26
Tracings of Yukōn survey plans made	95
New plans of groups of Yukon lots compiled	4
Sectional maps revised and reprinted	29
Declarations of settlers received	336
Progress sketches received and filed	952
Miscellaneous plans and tracings made	328
Applications for various information dealt with, about	1,180
Field books received from record office and used in connection with office work	1,555
Plans received from record office and used in connection with office work	437

P. B. SYMES,
Chief Draughtsman.

APPENDIX No. 8 TO THE REPORT OF THE SURVEYOR GENERAL.

STATEMENT of work performed in the Survey Records Office for the twelve months ending June 30, 1904.

Files received and dealt with	1,749
Letters drafted	2,112
Reports, drafts, memos. to Council	23
Plans, tracings, &c., copied or compiled	419
Statutory declarations copied and mailed	428
Plans sent to agents, registrars, &c	18,204
Pages of field notes copied	1,320
Prints of plans received and stored	51,441
Original plans received and recorded	644
Original field books received and recorded	327
Letters written to agents, registrars, &c	798
Registered parcels mailed	939

C. J. STEERS,
In charge of Survey Records.

APPENDIX No. 9 TO THE REPORT OF THE SURVEYOR GENERAL.

STATEMENT of Work executed in the Photographic Office during the twelve months ending June 30, 1904.

FOR THE DEPARTMENT OF THE INTERIOR.

	4 × 5	5 × 7	8 × 10	10 × 12	11 × 14	18 × 20	24 × 30	30 × 36	36 × 42	42 × 48	Total.
Wet plate negatives			92		106	694					847
Litho paper transfers					2	145					147
Zinc transfers			4		4	459					467
Dry plate negatives	96	153	2		71						322
Bromide prints		106		56	367	173	87	67	21		877
Vandyke prints			26		511		468	14			1,019
Silver prints	275	889	8		121						1,293
Total	371	1,148	132	56	1,182	1,426	555	81	21		4,972

FOR THE GEOLOGICAL SURVEY.

	4 × 5	5 × 7	8 × 10	10 × 12	11 × 14	18 × 20	24 × 30	30 × 36	36 × 42	42 × 48	Total.
Wet plate negatives			1	1	1	5					9
Dry plate negatives	60	16									76
Bromide prints							5		2	3	10
Vandyke prints					10	28		4			42
Silver prints	30	89	92								211
Total	90	105	93	1	22	33	5	4	2	3	384

SESSIONAL PAPER No. 25a

APPENDIX No. 10 TO THE REPORT OF THE SURVEYOR GENERAL.

STATEMENT of Work executed in the Lithographic Office for the twelve months ending June 30, 1904.

Month.	Maps.		Township Plans.		Forms, &c.	
	No.	Copies.	No.	Copies.	No.	Copies.
1903.						
July	9	1,710	24	2,400	—	
August	1	100	32	3,200	—	
September	6	2,575	22	2,200	4	1,450
October	3	570	53	5,300	6	2,800
November	2	1,000	52	5,200	1	35
December	2	2,100	46	4,600	11	4,240
1904.						
January	6	2,500	28	2,800	4	1,470
February	10	2,990	46	4,600	2	600
March	17	4,900	28	2,800	7	5,950
April	4	1,200	60	6,000	1	1,000
May	11	2,320	52	5,200	1	250
June	10	5,575	47	4,700	2	7,000
Totals	81	27,540	490	49,000	39	24,795

SUMMARY of Work for the Year.

—	Number of Jobs.	Number of Copies.	Number of Impressions.	Cost.	Cost per Map or Form.
				$ cts.	$ cts.
Maps	81	27,540	32,495	2,046 70	25 27
Townships	490	49,000	49,300	3,765 25	7 68
Forms, &c	39	24,795	24,795	600 30	15 39
Totals	610	101,335	106,590	6,412 25	

NOTE.—The cost in the above statement is for salaries only; it does not include supplies and materials.

APPENDIX No. 11 TO THE REPORT OF THE SURVEYOR GENERAL.

Descriptions of townships in which surveys were made of which reports were received during the year ending June 30, 1904.

TOWNSHIPS EAST OF THE PRINCIPAL MERIDIAN.

Range 8.

Township 2.—The whole of the soil in this township is third class. The southwest corner is principally muskeg, tamarack and poplar bluffs. The southeast corner is muskeg, poplar and spruce bluffs and the north half is about the same. The centre is somewhat rolling. There are not any settlers. There are no streams of water in the township.—*C. F. Aylsworth, D.L.S., 1902.*

Township 3.—The easterly two-thirds of this township north of Rat river is tamarack, spruce, jackpine, poplar, birch, cedar bluffs and muskegs. These different timbers are given as near as possible in order of abundance. The westerly one-third north of Rat river is willow flats, with tamarack, spruce, jackpine, poplar, &c. That portion of the township south of Rat river is hay meadow, muskeg, poplar, tamarack, jackpine, &c. Some of these hay meadows are the finest I ever saw in the west. The water in Rat river is clear and pure, but it is possible that the banks may overflow in the spring and flood large areas, especially on the south side of the river. There are no settlers in the township as yet.—*C. F. Aylsworth, D.L.S., 1902.*

Range 9.

Township 3.—Most of the northwest quarter of this township consists of rolling sand ridges, partially timbered with jackpine, the greater part of which has been fire-killed. There is a belt of swamp from a quarter to a mile in width extending southerly through the eastern portion. A man named Walton has a shanty and stable of logs on the southeast corner of section 21. Most of the northeast quarter is spruce and tamarack swamp, with some good clear cedar along the easterly boundary, and some rolling sand hills partially timbered with jackpine in the southwest corner. Sand river, a branch of the Rat river flows southerly through it. (Southeast quarter.)—Rat river crosses the east boundary of this quarter about half a mile north of the southeast corner, and flows through it in a westerly and northwesterly direction. Sand river flows south, crossing the north boundary of section 14 close to the northeast corner, and flows in a southerly direction into Rat river. Nearly all that portion south of the Rat is sandy land, timbered with green jackpine and poplar. There is considerable swamp east of Sand river and north of the Rat. The balance of the quarter consists largely of sand ridges, timbered with dead jackpine, with irregular narrow strips of swamp between them. (Southwest quarter.)—Rat river crosses this quarter of the township in a westerly direction, flowing out at the northwest quarter of section 7. All that portion south of the river is willow or tamarac swamp; the portion north of the river is of a mixed character, consisting of low sand ridges interspersed with swampy land, particularly along the river. There is about a mile in width of spruce and tamarack swamp north of the river along the westerly boundary.—*W. A. Ducker, D.L.S., 1902.*

Township 5.—The surface of section 4 is undulating to hilly with some spruce and tamarack swamp along its western boundary, but the greater portion is rolling sand hills sparsely timbered with small jackpine. The Canadian Northern Railway crosses the west half from north to south. The surface of section 5 is very level, most

of it being tamarack and spruce swamp with some small cedar in places. Nearly all the tamarack is under 12 inches in diameter, but much of it is very dense and would furnish a large quantity of excellent fuel. Most of the west half of section 6 is swampy and partially covered with small dead tamarack. Nearly all the balance of the section is well timbered with tamarack up to 12 inches in diameter, also a considerable quantity of spruce and some cedar. Near all the west half of section 7 is marsh interspersed with small dead tamarack, the balance is thickly timbered with tamarack, spruce and cedar, although very few trees are 12 inches through. Nearly all the west half of section 9 is spruce and tamarack swamp with a dense growth of timber under 12 inches in diameter. The east half is chiefly rolling sand hills, sparsely timbered with stunted jackpine. The Canadian Northern Railway crosses this section from north to south and Bedford station is located on the southwest quarter. Section 16 is nearly all spruce, tamarack and cedar swamp and a considerable portion of the timber has been cut into cordwood. The Canadian Northern Railway runs through it in a southeasterly direction. Sections 17 and 18 are very wet spruce and tamarack swamp intermixed with some cedar. The timber is small but much of it suitable for fences. Sections 19, 20, 21, 27, 28, 30, 31, 32, 33 and 34 are low and swampy, although there are some narrow ridges timbered with poplar and jackpine in the northwesterly part of the township. A considerable portion of the timber in the northwest quarter of the township has been fire-killed, and consists of small spruce and tamarack. The balance of the timber on this portion is spruce, tamarack and cedar, suitable for fuel, building logs and fence posts, most of the largest having been culled for lumber or ties. Sections 1, 2, 3, 10, 12, 13, 14, 15, 22, 23, 24, 25, 35 and 33 are located on the westerly slope of the Cypress mountains and consist chiefly of rolling sand hills, sparsely timbered with stunted jackpine, with some spruce and tamarack of fair size in the hollows.—*W. A. Ducker, D.L.S., 1902.*

Township 6 (south and east outlines).—Most of section 1 and parts of sections 2 and 12 are situated on the westerly slope of the Cypress mountains, and consist of rolling sand hills with a few scattered jackpine. The balance of the township is very level and swampy, the east half being timbered with small belts and islands of small tamarack and some spruce with open marshes intervening. Nearly all the timber on the west half of the township is fire-killed, corsiderable of it is fit for fuel, but the next fire that passes through that portion of the township will destroy all the wood. The surface generally throughout the township is a thick growth of moss overlying wet peaty mould, except on a few low ridges which are very stony.—*W. A. Ducker, D.L.S., 1902.*

(North outline)—The easiest way to reach this township is from Marchand station on the Canadian Northern Railway, but a considerable portion of it would be inaccessible in summer owing to its marshy character. About one-third of the township consists of muskeg and most of the balance is swampy and on the few ridges that are dry, the soil is shallow and stony. The surface is very level and swampy and most of the timber suitable for fuel or other purpose has been removed as the township has been under timber lease for a number of years. Most of what remains is small and fire-killed. There is very little hay to be found in the township as nearly all the open ground is muskeg. There are no streams of consequence in the township but water is abundant and of good quality in winter. There is still a considerable quantity of dead timber suitable for fuel if used before it rots. No minerals were found. This township is close to the railway but there are still moose and other deer with prairie chickens, partridges, rabbits and some lynx. The township is of very little value for any purpose unless it produces a new growth of timber.—*W. A. Ducker, D.L.S., 1903.*

Township 7.—(South and west outlines.)—This township would be difficult to reach in summer, the best way probably being from the Dawson road to St. Anne. With the exception of a strip of sandy poor soil along the northern limit, nearly all

the township is very swampy, and there is a good deal of muskeg in it. With the exception of the muskegs, most of the surface is timbered with jackpine on the ridges and spruce and tamarack on the lower portions. All the larger timber has been removed, and the greater portion of the balance is fire-killed, but the tamarack is still sound. There is very little, if any, hay in the township. Brokenhead river, a small stream about 20 links wide, rises in a shallow lake about 60 acres in area in the southeast portion of the township. It has one small branch, but water is abundant and of good quality. There is no water-power. No minerals were noticed, and no rock in place. Moose and other deer, with prairie chickens, partridges, rabbits and lynx are found. The township is of very little value for settlement.—*W. A. Ducker, D.L.S., 1903.*

Township 8.—The Dawson road makes this township easily accessible from St. Anne. Most of the north half and the southwest quarter is low and swampy, with sandy ridges, some of which are of considerable area in the southwest quarter. Most of the southeast quarter is high rolling sandy land and all the higher portions are very stony, many of the granite boulders being of enormous size. With the exception of the southeast quarter, which is rolling, most of the surface is level and swampy, and covered with spruce and tamarack on the lower ground and jackpine and poplar on the rolling portions. There are some ridges in the north half timbered with good poplar 6 to 8 inches in diameter, but the greater part of the timber in this half is spruce, tamarack and cedar, under 10 inches in diameter. Most of the southeast quarter is jackpine under 8 inches, and the greater part of the timber on the southwest quarter has been fire-killed and the best of it removed. A small quantity of hay can be cut near the Dawson road in the westerly portion of the township. Brokenhead river (with some small branches) flows through the township. It is about 20 feet wide where it crosses the north boundary and probably about 2 feet deep. Water seems abundant, and of good quality. There are no water-powers. For fuel there is a large amount of good tamarack in the northern half and jackpine in the southeastern quarter, and several hundred cords were cut during the past winter, but it is too far from a railway to be of much value for commercial purposes. No minerals were noticed, and no rock in place. Most of the dry land is too light and stony to be of much value for agricultural purposes.—*W. A. Ducker, D.L.S., 1903.*

Range 10.

Township 3.—(Northwest quarter.)—There is a strip of swamp about half a mile in width along the westerly boundary of this quarter; the balance is mostly rolling sand hills interspersed with small swamps. The timber is chiefly small jackpine and poplar, except in the swampy portions, above mentioned, where there is some spruce, tamarack and cedar of fair size. Over half the timber on this quarter of the township has been fire-killed.

(Northeast quarter.)—This quarter is of a very broken character, consisting of low sand hills and ridges interspersed with irregular areas of swamp and muskeg. There is some green jackpine and poplar on the ridges, but most of the timber has been fire-killed, and the tamarack in the swamp is very small and scattered.

(Southeast quarter.)—Rat river flows southwesterly through this quarter. There is a narrow strip of swampy land along the river and some swamp north of it, although the greater portion of the quarter consists of light sandy ridges timbered with small poplar and jackpine, nearly all of which has been fire-killed.

(Southwest quarter.)—Rat river flows westerly throughout this quarter, and has banks from 20 to 30 feet high in places. There is a high sandy ridge running southerly through the quarter. West of this ridge and along the westerly limit north of Rat river there is a strip of spruce and tamarack swamp, in which nearly all the timber is fire-killed. Most of the balance is rolling sandy land, sparsely timbered with scrubby

jackpine and some poplar, a considerable portion of which is fire-killed.—*W. A. Ducker, D.L.S., 1902.*

Township 5.—The greater part of this township is situated on the Cypress mountains and has a rolling surface with a few deep ravines. Sections 25, 35 and 36 are nearly all spruce and tamarack swamp with a considerable quantity of cedar suitable for fence posts and paving blocks. The swamp has a thick covering of moss overlying a deposit of very wet peaty loam. The soil of the balance of the township is almost pure sand on a subsoil of sand and gravel in places. The southeast corner has numerous small open marshes fringed with spruce and tamarack, the sandy ridges being densely wooded with jackpine 6 to 8 inches in diameter, interspersed with large poplar. The balance of the township is sparsely timbered with stunted jackpine, with small spruce and tamarack in the ravines. A large quantity of railway ties have been taken out along the east boundary of the township. There is still considerable tamarack suitable for ties in the swampy portions. With the exception of the cedar the balance of the timber is only fit for fuel.—*W. A. Ducker, D.L.S., 1902.*

Township 6.—The Cypress mountains extend northeasterly through the central portion of the township. There is a narrow belt of spruce and tamarack swamp along the central line of the township from east to west. With this exception, this portion of the township is rolling sand hills with a scattered growth of stunted jackpine of little or no value. Sections 18, 19, 30, 31 and 32 on the west side and sections 1, 2, 12, 13 and 24 on the east side of the hills consist almost entirely of spruce and tamarack swamp. There is some good cedar on sections 1 and 2 suitable for posts and paving blocks. Nearly all the remaining timber is small and suitable for fuel only.—*W. A. Ducker, D.L.S., 1902.*

(North outline.)—The most convenient way to reach this township is from Bedford station on the Canadian Northern Railway along the old Mennonite trail on which travelling will be good any time during the summer season. A large portion of this township is high rolling and the soil is of very poor quality, being light and sandy except in the swamps, which are too wet for cultivation till drained. The greater portion of the surface is sparsely timbered with jackpine and scrub, but the swamps are timbered with spruce and tamarack. Nearly all the large timber of any value has been removed, but there is an abundant supply of timber under 10 inches diameter for fuel, fencing and small building logs. There are a few small hay meadows scattered over the township. There are no permanent streams but the water on the low lands is generally of good quality. There are no water powers. There is an abundant supply of fuel scattered over the township. There are no indications of stone quarries or minerals. Moose, caribou and jumping deer are found in the township, also prairie chickens, partridges, rabbits and lynx. The township is of very little value except as a fuel reserve.—*W. A. Ducker, D.L.S., 1903.*

Township 7.—(North, south and east outlines.)—This township is most conveniently reached by the Dawson road from St. Anne, the road being very good. About two-thirds of the surface is very light, sandy and stony, many of the granite boulders being very large. The balance is generally swampy, and useless for cultivation until drained. The upland portion is rolling and generally timbered with jackpine, and the swamps, where not muskeg, are timbered with spruce and tamarack. Nearly all the timber left in the township is under 10 inches diameter, and only suitable for fuel, fencing and building logs. No hay was seen in this township. Good water seems close to surface throughout the township. Fuel is abundant throughout the township. No stone quarries were seen, nor minerals. The township is of very little value except as a timber or fuel reserve.—*W. A. Ducker, D.L.S., 1903.*

Township 8.—This township can be most readily reached by the Dawson road from St. Anne, on which travelling is good. About two-thirds of the surface is spruce and tamarack swamp, too wet for cultivation till drained. The balance consists of sandy

ridges, the soil being very light and stony. The low lands are timbered with spruce and tamarack, and most of the ridges with jackpine, though there are a few open areas. Most of the timber is under 10 inches diameter, but there is a large amount of good tamarack for fuel. About 20 tons of hay could be cut annually, mostly on sections 12 and 13. There are some small creeks in the northwest part of the township, and good water can be obtained near the surface in almost all parts of the township. No water-powers were seen. Fuel is abundant in all parts of the township, and there is a large amount of good tamarack, principally in the north half. No stone quarries were seen nor minerals. This township is of little value except for fuel supply, and is at present too far from a railway to pay for hauling.—*W. A. Ducker, D.L.S., 1903.*

Range 11.

Township 3.—(Northwest quarter.)—There is some swamp and small dead tamarack along the westerly boundary of this quarter, although the greater portion of it is undulating to rolling, and partially timbered with small jackpine and poplar, fully three-fourths of which is fire-killed.

(Northeast quarter.)—This quarter is undulating to rolling. There is a little spruce and tamarack swamp in the northeast corner, the balance being sparsely timbered with dead jackpine and some poplar. Soil is almost pure sand.

(Southeast quarter.)—This quarter is undulating to rolling, and sparsely timbered with dead jackpine and poplar. There is still a little green jackpine on the southeast corner. The soil is very light and sandy.

(Southwest quarter.)—This quarter is undulating to slightly rolling, with small areas of low land, partially covered with red willow. Timber consists of small jackpine and poplar, almost all of which has been fire-killed. The Southeastern railway crosses the township in a southeasterly direction from the west boundary of section 31 to the east boundary of section 12.—*W. A. Ducker, D.L.S., 1902.*

Range 12.

Township 3.—The surface of this township is undulating to hilly. There is very little timber on the west half. The east half is partially timbered with jackpine, poplar and a considerable area of spruce and tamarack swamp on the east side. Except in this swamp, the soil is very light and sandy. The timber in the swamp is mostly of small size, suitable for fuel. A small branch of Whitemouth river flows northerly through the northeast quarter. Summit siding is situated between sections 6 and 7, and a trail from this siding runs northeasterly to Whitemouth lake.—*W. A. Ducker, D.L.S., 1902.*

Township 4.—A well defined sandy ridge crosses this township from section 13 in a westerly direction, on which the trail from Whitemouth lake to Woodridge is located. North of the ridge is chiefly very wet spruce and tamarack swamp, of no use for settlement. South of this ridge the land is more undulating, and timbered with poplar, jackpine, spruce and tamarack on the lower land, though there is a good deal of brulé, especially in the southwest portion. The soil of this portion varies from sand to sandy loam on subsoils of sand and sandy clay, and portions will be found fairly suited for cultivation. There is an abundance of timber suited for building logs, fuel and fencing.—*W. A. Ducker, D.L.S., 1902.*

Range 13.

Township 2.—The westerly portion of this township is undulating to rolling and is largely brulé. Mud creek runs southerly through the central portion and most of

the land along its banks is low and swampy. A large portion of the east half of the township is spruce and tamarack swamp in which the timber is very small. Most of the rolling land is sandy and of very poor quality. The Canadian Northern Railway crosses the southwest corner of the township; Vassar station is situated in it. There is some fairly good land in the northern portion and near Vassar station, but only a small portion of the township is suitable for settlement.—*W. A. Ducker, D.L.S., 1902.*

Township 3.—Whitemouth lake occupies several sections in the eastern part of the township. The quality of water in the lake is fairly good, and the depth reaches a maximum of about 14 feet, though the greater portion is under 4 feet. The bottom is generally muddy and very soft. The lake is fairly supplied with pike or jackfish, pickerel and suckers. Nearly all the south half consists of spruce and tamarack swamp and is of no value for agricultural purposes. The north half is more undulating and timbered with poplar, spruce and jackpine, with tamarack in the hollows. The soil of this portion varies from sandy to sandy loam and portions of it have a clay subsoil. A small settlement might be made in this portion, though it is somewhat difficult of access in summer.—*W. A. Ducker, D.L.S., 1902.*

Township 4.—The southeast corner of this township is broken by Whitemouth lake which in this part is very shallow and muddy, with marshy shores. A well-defined sandy ridge crosses the township from section 12 to section 18, on which is a fairly good trail from the lake to Woodridge, though the road is rather circuitous. Nearly all that portion of the township north of this ridge is spruce and tamarack swamp or muskeg and is of no value for settlement. The soil along the ridge is very light and sandy but south of it is of somewhat better quality and might be cultivated succesfully.—*W. A. Ducker, D.L.S., 1902.*

Range 14.

Township 1.—Mud creek flows southerly through this township and has been used in the southern part for driving logs for several years past. The Canadian Northern Railway crosses the central portion of the township from east to west and Sprague station is located on section 15. Portions of the west half are undulating and partially timbered with poplar, birch, &c., and a number of quarter-sections in this portion will probably be found fit for settlement, but the township generally is flat and swampy with large muskegs and very wet spruce and tamarack swamps. The timber has been extensively culled for lumber and fuel purposes.—*W. A. Ducker, D.L.S., 1902.*

Township 2.—Nearly all of this township is spruce and tamarack swamps in which most of the timber is very small and scattered. The township is too wet to be of any use for agricultural purposes.—*W. A. Ducker, D.L.S., 1902.*

Township 3.—The northwest portion of this township is very much broken by Whitemouth lake. The water in the lake is of fair quality, but most of it is very shallow with a soft, muddy bottom. The lake is fairly well supplied with pike or jackfish, pickerel and suckers. The land on the island on sections 31, 32 and 33 is fairly dry and well wooded with poplar, birch, jackpine, spruce and some tamarack. The balance of the township is low and swampy, and timbered with small spruce and tamarack, most of which is too small to be of any value even for fuel.—*W. A. Ducker, D.L.S., 1902.*

Township 4.—The southwest corner of this township is broken by Whitemouth lake, which is mostly shallow, with a very muddy bottom in this portion. Whitemouth river takes its rise in the lake, and flows northerly through the township. There is a little dry land near the north shore of the lake and a little along the banks of the river, but most of the township is low spruce and tamarack swamps, on which the timber is very small, and a large proportion of it has been fire-killed. The township is not suited for settlement.—*W. A. Ducker, D.L.S., 1902.*

TOWNSHIPS WEST OF THE PRINCIPAL MERIDIAN.

Range 1.

Township 22.—The Fisher river and Icelandic river road, a branch of the Great Northern highway running north from Teulon passes through the southerly and easterly parts of this township. Soil is a black and clay loam with a clay subsoil suitable for all agricultural purposes. With the exception of the extensive muskegs, the surface is well timbered with poplar, balm of gilead, spruce and tamarack occurring in about the order named, and evenly distributed. Good swamp grass can be cut around most of the sloughs, but the surface of the large muskegs is mostly thick moss, and as they are very soft will not be of much use for hay until drained. A considerable creek, the outlet of Oak Island lake, passes through the westerly part of the township, flowing in a northeasterly direction, and loses itself in the large muskeg on the north boundary. Another creek flows westerly from the large swamp on the east boundary, and it is also lost in the same muskeg. The water is all fresh and good. On account of the level nature of the surface, no water power could be developed. Climate is good, with no summer frosts. There is an abundance of wood for fuel as mentioned above, but no stone quarries or minerals. Partridge, prairie chicken, moose and elk are very numerous, with a few caribou.—*H. B. Proudfoot, D.L.S., 1902.*

Range 3.

Township 23.—The colonization road running from Teulon to Fisher river, laid out under the supervision of the Swamp Lands commissioners, passes through section 36 of this township, and affords the only means of reaching it from the railroad. The soil is clay, with an alluvial deposit of from 6 to 10 inches of either black or clay loam, and will when cleared and drained make excellent farming land. The surface is undulating, and covered with a growth of poplar, balm of gilead and spruce, some of large size. A large part of the township is occupied by two large sloughs or lakes, which are impassable in summer. The poplar and spruce on most of the land would be suitable for building and lumber, but for the latter purpose should be reserved for settlers, as timber is scarce as a rule in this district. Large quantities of hay can be cut in and around all the sloughs and ponds. It is the ordinary swamp hay. On the high lands where there is any open country the grass is short. Water in summer is only too plentiful, the sloughs being all fresh; but in winter wells are the only way to be sure of a supply, the creeks and ponds generally freezing solid. The land is too flat to afford a head for water-power. The climate is the usual, but no frosts were observed the preceding summer. There is any quantity of wood for fuel, but no coal. Limestone in place was observed on sections 12 and 14. No minerals were discovered. Moose and caribou are abundant, and also small game, such as chickens, partridge and rabbits.—*H. B. Proudfoot, D.L.S., 1902.*

Range 9.

Township 19.—This township lies on the west shore of Lake Manitoba, and has a good slope to the lake, though much of it is very wet from the flow of water coming from the west. Most of the township is timbered with small poplar and willow, though there is some poplar 8 to 10 inches in diameter on sections 4 and 5, and some scattered poplar and a few spruce in the northern portion. The soil is generally a black loam 6 to 8 inches in depth on clay subsoil. An old cart trail to Manitoba House runs near the shore of the lake, but most of it was under water all summer owing to the high water in the lake, and from the same cause most of the settlers along the shore have been compelled to abandon their homes. There are some good hay meadows scattered

through the township, but no hay could be cut near the lake shore this year owing to high water.—*W. A. Ducker, D.L.S., 1902.*

Range 10.

Township 18.—The surface of this township is very much broken by marshes and shallow lakes. A well-defined gravel ridge 6 to 8 feet in height runs northerly through the eastern portion of the township and the trail to Kinosota is located on this ridge, making an excellent natural road-way. The soil is generally a good black loam 6 to 8 inches deep on clay subsoil, but owing to the lakes and marshes, the township (with the exception of that portion along the Kinosota trail) is almost inaccessible during the summer season. The timber is nearly all small poplar under 4 inches in diameter and mixed with willows. There are a few poplars 12 inches in diameter and under along the ridge and also some stunted oak 8 to 10 inches in diameter. Very little of the township is fit for settlement till the marshes are drained.—*W. A. Ducker, D.L.S., 1902.*

Township 19.—The Kinosota trail is located on a gravelly ridge 6 to 10 feet in height running northerly through the east half of this township. An almost continuous muskeg, averaging about 20 chains in width extends along the west side of this ridge, rendering the western portion of the township almost inaccessible in summer. There is a heavy slope from the ridge easterly, but the large volume of water which comes through by a couple of creeks and soakage spreads over it and keeps it in a wet condition most of the summer. The soil is generally a black loam 6 to 8 inches deep on a clay subsoil and is of good quality. The timber is mostly small poplar (mixed with willow) and fit only for fuel and fencing. There is some scattered spruce on the north half but not enough to be of any commercial value. This township would not be difficult to drain, when it would be well suited for cultivation.—*W. A. Ducker, D.L.S., 1902.*

Range 11.

Township 18.—The southeast quarter of this township is almost entirely covered by the Big Grass marsh and low hay lands adjoining the same. Almost all of the northeast quarter of the township is low land, partially timbered with willows and some small poplar on the low ridges. This quarter is much broken by marshes and shallow lakes. The west half of the township is level to gently undulating and generally timbered with small poplar interspersed with willow and scrub. A very small proportion of the poplar is over 4 inches in diameter. Grassy river flows southeasterly through section 6 and there are a number of shallow lakes with good water in this half of the township. Except in the marshes and low lands, the soil is generally a good black loam, 6 to 10 inches deep on clay subsoil. Some of the low ridges are somewhat stony. The west half of the township would be well suited for cultivation if Grassy river were improved so as to prevent its overflow. There is an immense quantity of hay on the east half and on sections 4, 9, 16 and 21, but almost the whole of this area was under water during the whole of last June, and unless Big Grass marsh is drained, settlers could not reside on it, though large quantities of hay can be cut every year. Sections 6 and 18 are occupied by settlers who have good improvements and considerable areas under cultivation.—*W. A. Ducker, D.L.S., 1902.*

Range 22.

Township 32.—Part of the township consists of sloughs, muskegs and flat land covered with a dense growth of willows. The muskegs are timbered with stunted

tamarack fit only for firewood and fence posts. The soil is a black muck with a subsoil of sand. There is a strip of good land about 40 chains in width along the railway and along the south boundary of the township. There is also a strip of dry land timbered with small spruce, jackpine, tamarack, and poplar and balm of Gilead.—*John McAree, D.T.S., 1903.*

Range 24.

Township 24.—Sections 31, 32, 29, 30, 19, 20, 17 and 18, and the north halves of sections 7 and 8, are level, with tracts of poplar bush; trees up to 12 inches, mostly scattering; other tracts of small young poplar scrub and willow, with long grass in wet places. There are some open tracts with scrub patches, but very little open prairie; still there is a good deal of land that can be cheaply cleared, in fact most of it can. The sloughs met with with one exception were dry. There is sufficient wood for fuel and building on these sections to meet the want of the settlers for a good while to come. Section 5 and 6 and the south halves of 7 and 8 have had a good deal of timber, including spruce, but the fire has swept most of it some years ago. A thrifty growth of young poplar is coming up, and there is not much open country. In some places there is some limestone gravel in the soil, which is a strong clay loam. The cattle have a fine range through the bush, as grass is abundant. Good water is found by digging about 20 feet. The crops are good this year, although the backward spring put back harvesting time somewhat. This settlement is greatly favoured in being so near the railway, Grand View being only about eight miles by the section line from the northwest corner of the township.—*John McAree, D.T.S., 1902.*

Township 26.—The sections surveyed have a little timber on them, also small poplar and scrub, with prairie and hay sloughs. A spring rising on southeast quarter of section 6 flows eastward on to section 5, and furnishes an abundant supply of good water. This spring deposits a little bog iron ore. Grand View being only 10 miles distant, the settlers of this neighbourhood have no freight question, especially as the Canadian Northern railway will have a siding on the southeast quarter of section 1 in township 26, range 25, west of the principal meridian.—*John McAree, D.T.S., 1902.*

Range 25.

Township 26.—I surveyed sections 1, 2, 11, 12, 13 and 14 in this township. Section 2 and the south half of section 12 is taken up. The land is level, with numerous hay marshes. A general description would be level land, black clay soil in some places, and black sandy loam, in some others, clumps of poplar up to 14 inches, with young poplar and willow scrub, with prairie openings, hay sloughs, and with heavy grass among the scrub and willow, with somewhat extensive areas of bush on sections 13 and 14 and the northwest quarter of 12. The south halves of sections 1 and 2 were covered by a heavy poplar bush, which, with the exception of scattered trees, has been removed by bush fires. Settlers who secured land in this locality have been fortunate, since the Canadian Northern railway runs through sections 1, 2, &c., of this township. The land is fit for mixed farming or for ranching. Water can be had by digging about 20 feet.—*John McAree, D.T.S., 1902.*

Range 30.

Township 29.—Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 17, 18, 19 and 20 were surveyed. The remainder of the township is not so attractive for settlement, being covered with

brulé and windfall and having a second growth of young poplar and spruce coming up. It is for the most part good land, I believe, but has, of course, to be cleared before a crop can be grown. Sections 17, 18, 19 and 20 are partly rough and broken by the ravine of Little Boggy creek, but it was thought desirable to survey them on account of their ranching possibilities, being traversed as they are by the stream mentioned. The sections laid out are composed of prairie and bush, the later being almost exclusively poplar varying in size from mere scrub to trees of 12 inch diameter. Along Boggy creek there has been a growth of large spruce, poplar, tamarack, &c., but the valuable spruce has been taken by the lumberman and fire has killed the most of what was left. Along the valley of Little Boggy creek chiefly on the south side there are scattered small clumps or single trees of spruce and poplar which would furnish firewood or building timber, but altogether on the sections surveyed the amount of timber is comparatively small. Boggy creek rises in this township in a lake on sections 15 and 16 and expands into another lake which must be 150 feet below the prairie to the south. North of the lake the country is covered with brulé and rises still higher. The valley of the Little Boggy is about 200 feet below the surrounding country, and owing to the presence of water and hay meadows should have strong attractions for intending ranchers. The Little Boggy is a fine stream from 25 to 50 links wide with sweet water. In spring the volume of water is sufficient for driving saw-logs. There is a narrow belt of timber along it, spruce, tamarack, poplar, &c., most of which has been removed or killed by fire. There is an area of timber on sections 4 and 5 mostly poplar, with trees up to 10 and 12 inches in diameter. Exclusive of the Boggy creek and Little Boggy creek ravines, the part of the township surveyed is gently rolling with a soil of brown or black clay loam with a clay subsoil. It should yield excellent crops. In some parts there are a few scattered boulders, but this drawback is not serious, except perhaps over a few small areas. There are some hay sloughs with long grass in most of the poplar bluffs. Traversing the westerly portions of sections 6, 7 and 18 is an escarpment which is the easterly slope of a tributary to the Little Boggy creek from the south which crosses sections 6 and waters the valley through which the Canadian Northern Railway will pass. There are hay sloughs or meadows along the flats and the slopes themselves are not steep. The general aspect of the land is scrubby and bushy and might at first sight be unattractive to agriculturalists who have been used only to the open prairie. But the drawback arising from the increased cost of preparing the land for crop is, in the estimation of the majority of people, more than offset by the advantages which the presence of living trees and bushes insures. It is obvious that these lands being so near the line of railway must be rapidly taken up by settlers.—*John McAree, D.T.S., 1902.*

Range 32.

Township 30.—A notable feature in the topography of this township is Whitesand river, crossing it from southeast to northeast and dividing it agriculturally as well as topographically into three areas, viz.: the valley of the river itself, the important area on the west of this and the tract of high land in the northeast quarter of the township. The westerly tract comprises sections 5, 6, 7, 8, 18 and 19 and constitutes a sort of flat ridge along the west side of Whitesand valley, at an elevation of about 75 feet above the same. The surface is gently rolling and is composed of prairie and tracts covered more or less with poplar and willow scrub. The greatest development of prairie is in the southerly part, where are also the large hay sloughs. The poplar scrub areas are in reality tracts of brulé from which the timber was burned some years ago. The whole of this part of the township would appear to have been wooded to some extent for scattered dead poplar trees can be seen all over. There are a few sloughs, most of

them producing hay. The soil is a dark loam with a clay subsoil and is generally of excellent quality. The advent of the railway makes these lands very desirable. The land between Whitesand and Assiniboine rivers is level prairie with much scrub, willow, &c., and some areas of young poplar up to 3 inches in diameter. There are only a few scattered bluffs with trees large enough for firewood. The soil is the same clay loam but not uniformly as deep as on the ridge west of the Whitesand. There are a few boulders in spots along the old Pelly trail. There is fine land in parts of sections 29, 30, 31 and 32. There are a few hay sloughs, especially along the Assiniboine where the land is valuable chiefly on this account and for grazing. A flat stony tract extends between the Whitesand and the western ridge above described from the south boundary as far north as the point where the old Pelly trail crosses the river. The soil is rather damp and it is the poorest piece in the township, being open prairie.

The Assiniboine flows in its usual tortuous course across the township with banks from 6 to 12 feet high, with a narrow fringe of very tall and thick willows, including the grey willow species, which grows down to the water's edge. The current at low water appears to be feeble and we noted two rapids where trails cross. As already noted the extensive hay sloughs along the river afford good opportunities for ranching. There are a few western maple trees at points along the stream. The Whitesand is from 50 to 100 links in width with banks from 8 to 12 feet high and an easy current over a clay bed. At the shallow places boulders occur. The fringe of willows is light and in places altogether absent. The banks at the old Pelly trail crossing are pretty steep for a loaded vehicle. Altogether this township, or at least a part of it, is a valuable one for settlement, having the excellent farming area west of Whitesand river and the farming and hay lands of the other portions, the whole being well watered by the two large streams. An obvious drawback is the absence of timber. This would have to come from the Duck mountains to the east. There has evidently been at one time a poplar forest on the high land west of the Whitesand, but all that is left is a few scattered dry trees which are at the present time being removed to the Doukhobor village for fuel.—*John McAree, D.T.S., 1902.*

Range 33.

Township 30.—This is a fractional township adjoining the second meridian, being composed of a single tier of broken quarter sections. The east boundary was run parallel to the second meridian. The surface is high, open prairie with some scrub and a few hay sloughs. The soil is a fine clay loam and is all, or nearly all first class. The only timber is a very few scattered dry poplar. The whole township is good farming land.—*John McAree, D.T.S., 1902.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN.

Range 1.

Township 34.—A rather rough trail crossing sections 36 and 35, known as the Swan river trail from Fort Pelly, is the best route for reaching this township. The soil is a rich clay loam of good depth, and remarkably free from gravel or sand, and will be well adapted for any kind of farming. Swan river flows through section 36, and as the valley of that river is from 250 to 270 feet deep, that and the adjoining sec-

tions are very rough. The remainder of the township is slightly rolling, and is mostly covered with scrub (which has mostly been killed by fire), with an occasional bluff of poplar or spruce. Scattered bluffs of spruce and poplar of small size were seen, but these would only supply the first wants of settlers. Marshes, which in a drier season might produce a large quantity of good hay, are found in many places within the township. The water in Swan river and in Spruce creek, a stream flowing through the southerly sections of this township, is very good, and will afford a permanent supply. The other smaller streams have a marshy taste, and cannot be relied on in a dry season, though some lakes do not probably become dry at any time. There are no streams of sufficient importance to give water-power of any value. The climate was good, except perhaps for the rather too abundant rainfall. The first frost was on August 26, but no harm seemed to be done by it. A limited quantity of wood can be found within the township, but for any permanent supply the settlers would have to bring it from the west. There is no exposure of rock and therefore no stone quarries. No minerals of any economic value were noticed. Signs of moose and deer were seen, but this kind of game is becoming scarce in this vicinity. On the other hand, ducks, chickens and partridge were very abundant in their season. An extensive fire swept over this country last spring, killing most of the scrub, consuming all dead brush and fallen trees, and thus leaving the ground clear of anything except dead scrub. No new growth afterwards started, and therefore a great part of this township is changing to prairie; and this change would be effectually accomplished by another fire. Even without another fire there would not be any great difficulty in clearing tracts on most of the sections. For this reason this township seems to offer such inducements that its early settlement is certain.—*Edgar Bray, D.L.S., 1903.*

Township 35.—A wagon trail from Fort Pelly enters this township in section 2, and passing through the township leaves again in section 31. This trail is rough or hilly in places, but it is easily passable with moderate loads. The soil is a deep clay loam of excellent quality, and is suitable for any kind of farming or stock raising, the former more particularly on the high lands and the latter in the valley of Swan river. Swan river enters this township near the corner of sections 31 and 32, and flowing southeasterly leaves again between sections 1 and 2. For about one mile on each side of this river the land is rough, and rises to an elevation of from 250 to 270 feet, and in this valley we found woods of small poplar with openings more or less scrubby, and occasional hay marshes. The land west of this valley is mostly slightly rolling, and covered by dead scrub. East of the valley the land is also slightly rolling, and covered with green scrub, with scattered bluffs of poplar. Poplar and spruce of fair quality are found in part of sections 31, 30 and part of 19. Poplar, also, is plentiful along and near Swan river, but it is too small to be of much value. No other timber of any importance was seen. Hay marshes can be found in almost any section. This year these were real marshes, but in a dry season the supply of hay should be sufficient for all purposes. The water in Swan river is fresh and very good, and may be relied upon as being permanent. Water from other sources has a marshy taste, and will probably disappear altogether in a dry season. The river has a current too slow to be of any practicable use as a water-power, and besides the volume of water is not sufficient in winter or in dry seasons for any such purpose. The climate does not appear to differ materially from that of the cultivated lands to the south except, perhaps, in the amount of rainfall, of which there was an abundance. A plentiful supply of fuel for present purposes can be got almost anywhere in the valley of Swan river, and it may also be procured in many places on the high lands. There are no exposures of rock, and consequently nothing in the nature of quarries. No minerals of any value were noticed. Traces of moose and deer were often seen, and ducks, chickens and partridges were abundant in their season. The valley of Swan river is, in many places, too rough for cultivation, though it will all be valuable for grazing purposes when it is cleared of

scrub and brush. Even in its present condition a large number of cattle could find excellent pasturage along this river. On the other hand, the high land both east and west of this valley will attract settlers of the farming class, as it is mostly covered with scrub, which, generally, can be cleared off in less time and without the expense connected with the clearing of timbered lands.—*Edgar Bray, D.L.S., 1903.*

Range 2.

Township 34.—This township can be reached from Fort Pelly, by a trail which enters the township in section 2, or by crossing range 7 from the Swan river trail. The former is swampy but is the preferable route in dry weather, being shorter than the route via Swan river. The surface is generally slightly rolling and often broken by swamps, especially in the northwesterly sections. The easterly half of the township is covered with scrub with poplar or spruce bluffs, this scrub and many of the bluffs having been killed by fires. The westerly half is poplar woods alternating with scrub, with an occasional bunch or belt of spruce partly killed by fire. The timber lies chiefly in the western half of the township and is mostly poplar of small size, though small tracts of spruce of fair size, but partly dead, were seen in sections 32, 33, 34, 21, 22, 17 and 8. This timber will be of considerable value to settlers, both for building purposes and fuel. Marshes which will furnish excellent hay can be found in any section of the township, but they are generally of small size. A number of lakes and ponds in this township insure a permanent supply of good fresh water. There are no water powers. The climate does not seem to differ in any material respect from that of the country farther south, now successfully cultivated. The only available fuel is wood, of which there is a fair supply within the township. There are no stone quarries. No indications of any minerals of value were noticed. There are a few moose tnd deer in this locality, but large game generally is becoming scarce. Ducks, chickens and partridges were very plentiful and rabbits were numerous. The soil is suitable for any kind of farming, being a rich clay loam of good depth and generally free from stones and gravel. As more tan half of this township is covered with dead scrub, no great expense would be incurred in clearing and preparing considerable tracts for cultivation, and for this reason this land is mostly well adapted for early settlement.—*Edgar Bray, D.L.S., 1903.*

Township 35.—The Swan river trail from Fort Pelly can be used for reaching this township. It is in some places rather rough and runs through the adjoining township to the east. The soil is a rich clay loam of good depth and is suitable for any kind of farming. The easterly part of this township, containing about one-third of the total area, is covered with scrub with scattered bluffs of poplar and some spruce, while the westerly two-thirds is a mixture of woods of poplar and scrub with some spruce bluffs. The surface is mostly gently rolling and swamps are often found. A limited quantity of fair spruce and poplar was found in sections 36 and 35, and again in sections 4 and 5. Elsewhere the timber is poplar with occasional spruce, of generally small size and of no particular value, except to settlers. Marshes were found in almost every section and, in a normal season, most of these could supply large quantities of hay of very good quality. The water may, generally, be called fresh but it has a marshy taste and cannot be relied on as being permanent. There are no water powers of any kind. An extra heavy rainfall seems to be a feature of this locality, but in other respects the climate does not appear different from that in the cultivated districts in other sections of the territories. Wood is the only fuel available and is found in considerable quantities almost everywhere. There is no stone suitable for quarries. No minerals of any value were found. A few deer, moose and bears may

be found here but these animals are now scarce. However, ducks and partridge are very plentiful. The easterly part of this township is mostly covered with dead scrub and considerable tracts can be cleared without much expense. On the other hand, the westerly sections, containing about two-thirds of the township, being mostly timbered, is not so easy of access, but the value of the wood may be an inducement to settlers and others. However, excepting the marshes, the whole township is excellent land and singularly free from stones or gravel. Frost was first noticed on August 26th and frequently thereafter.—*Edgar Bray, D.L.S., 1903.*

Township 36.—(East outline.)—This section is reached by a rough but passable trail from Fort Pelly known as the Swan river trail. The soil is a good clay loam, suitable on the high lands for grain growing or mixed farming, though the valley of Swan river is too rough for cultivation, but might be used for stock raising. The whole line runs through either scrub or woods of small poplar, with occasional bluffs of larger trees. The timber is of little commercial value, but it will be an advantage to settlers. Hay swamps are not plentiful, though where found the grass is generally of good quality. Swan river and a tributary stream flowing through section 6 will give a permanent supply of good fresh water. Swan river does not produce any water-power. The climate is about the same as is found in the cultivated districts farther south. The only available fuel is wood, which is easily found in quantities sufficient for the present use of settlers. No fixed rock, and nothing suitable for quarries was seen. I found no mineral of any value. Moose, deer and bears were noticed, but large game is scarce, while ducks, chickens and partridges are plentiful in their season.—*Edgar Bray, D.L.S., 1903.*

Range 3.

Township 34.—This township is an excellent one for farming and stock raising. Numerous sloughs and hay marshes supply large quantities of hay for feed, while the dry land, although covered with scrub, will be easily cleared, and will make first-class agricultural land. A trail coming into the township near the centre of the south boundary from the Yorkton and Pelly trails leads up through and ends near the centre of the township on the north boundary. The soil is a black vegetable loam resting on a clay subsoil, and is well adapted for grain growing. The surface is gently rolling, and scrubby on the east half and the northwest corner. Some patches of prairie interspersed with scrub exist in the centre of the township and the southwest quarter. Some spruce timber suitable for building logs occurs along the edges of the sloughs, but not in large quantities, and considerable of it, fire-killed, may be found on several sections, but mostly on sections 12 and 1 and in the east half of 2. Considerable quantities of hay are found on every section in the numerous sloughs, but principally on sections 9 and 16. These hay sloughs are this season, at this date (July), too wet to cut. Water is all fresh and good. There are several small creeks, the main stream being the west branch of Stony creek. The creeks and sloughs, in most cases, are likely to dry up in a dry season, judging from the fact that the sloughs have old grass or dead grass roots in the bottoms. The shores of the creeks are liable to flooding, but this in the proper season gives a large growth of hay. The supply of water is not continuous enough to furnish any water-power. The climate has so far been similar to that of Manitoba, but was very rainy through July. Fuel exists on nearly every section, consisting of fire-killed poplar poles and green growing scrub. No stone quarries were seen, but boulders may be got in the beds of the creeks. No minerals of any kind were observed. Not much game except a few ducks were seen. Plenty of raspberries and gooseberries are found, and some black-currants. The low places in this township could be drained.—*John Francis, D.L.S., 1903.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN—RANGE 3.

Township 35.—This township can be reached from the south by following the east bank of the west branch of Stony creek to the north boundary. Its condition in wet weather is not good. The soil is mostly a black vegetable loam, 6 to 12 inches in depth; subsoil gravelly clay. The surface is gently rolling and very scrubby, with numerous flats and sloughs. There is not much timber and any large poplar that there is is rotten at its heart. In ordinary dry seasons the sloughs will furnish abundance of hay, but they are all too wet to cut at present. All water is fresh, and is in liberal quantities this summer. The west branch of Stony creek enters the township on section 34, and flows south and southwesterly, leaving it on section 4. Its shore in places is subject to flooding, but to no great extent. There is no water-power. Summer climate for this year has been very rainy; light frost August 22 and 26 and September 4. There is an abundance of poplar; poles and willows for fuel may be procured on every quarter section. No stone quarries were found, but there are some few boulders, mostly limestone. No minerals were observed. Very little game was seen, but evidences of deer and bear were plentiful. Fruit, raspberries and cranberries are found in considerable quantities in places.—*John Francis, D.L.S., 1903.*

Township 36.—This township is scrubby, with numerous sloughs and low places. The soil is clay, with a covering of light vegetable mould 2 to 3 inches in depth. The surface is gently rolling, and some boulders are found. There is no regular trail to reach this township, but one may be made from the south along the centre meridian. The surface is gently rolling and scrubby, the eastern row of sections containing some poplar fit for cordwood, but no timber of any value except for fuel. Numerous sloughs are found all over the township, but all too wet to cut this season. Water all good and plentiful, but no water-power exists. Climate.—Light frost on August 22, but generally similar to northern Manitoba. Fuel.—Small poplar, both green and dry, may be had on every section. No stone quarries were found; a few large boulders, mostly limestone were seen. No minerals of any kind were met with. A few ducks, many partridges and rabbits were the principal game seen.—*John Francis, D.L.S., 1903.*

Range 4.

Township 35.—The best way to reach this township is by trail up the north and west banks of Assiniboine and Etoimami rivers to Wright's ranch on sections 24, 35 and 5; thence easterly on pack trail to Kop creek; along the west side of this creek the country is more or less open and a team can be driven either north or south. Soil is a clay loam 2 to 15 inches deep on a gravelly clay subsoil and is well adapted for mixed farming. Surface is gently rolling and is more or less scrubby. There is very little timber left, a few building logs may be obtained in different places on the two eastern tiers of sections. There are many small hay marshes, hardly a quarter section without one or more. All water is fresh and good. Kop creek flowing southerly through the township is a fine stream having an average width of 12 feet, with 12 inches of water and current 2½ miles per hour. Very little land along this stream is subject to flooding. At the present time the supply of water is continuous. A water power could be obtained on section 4, as the valley narrows on this section. Climate is similar to Manitoba. May and June were dry, but there was plenty of rain during the rest of the summer. There is an abundance of fuel, both dry and green poplar, plenty may be found on every section. No minerals or coal were observed. No stone quarries were seen, but there are plenty of boulders, both limestone and granite, along the bank and bed of Kop creek. Prairie chicken and rabbits are plentiful. A few ducks, tracks of moose and jumping deer were seen.—*John Francis, D.L.S., 1903.*

Township 36.—To reach this township a trail can be made easily along the west bank of Kop creek from the south to the north boundary of the township. This can

be driven over at present in dry weather. The soil is mostly a clay loam, covered with a vegetable loam of 3 to 12 inches and is suitable for mixed farming. The surface is gently rolling and is very scrubby over all the township. There is plenty of small poplar fit for fuel and it can be found on every section. There are numerous hay marshes, some on every quarter section, but wet at this time of the year (June 10). Water is all fresh and in abundance, but no water power. Light frost June 10 and 13, but climate is similar to that of Manitoba. No coal was seen or other minerals. No stone quarries but boulders may be got along bed and bank of Kop creek. Prairie chicken and some duck and traces of moose and jumping deer were seen.—*John Francis, D.L.S., 1903.*

Range 6.

Township 33.—A fairly good trail from Good Spirit lake which passed on sections 2, 3, 10 is the best way to reach the township. The soil is clay with from 5 to 10 inches of black loam very suitable for farming. The township has a gently rolling surface with patches of prairie and scrub, being a little more broken in the northeast part. There are some scattered bluffs of good poplar fit for building on almost every section. Hay of good quality is found in abundance in the numerous sloughs and along the creeks. Crooked Hills creek in the northeast and Spirit creek in the southwest give an abundant supply of water. The climate is the same as northern Manitoba. There is no water-power, no coal, no stone quarries and no minerals in the township. Poplar for fuel is not yet scarce in any part of this township. Prairie chicken, grouse and rabbits compose the game. Mr. Richard Mitchell squatted on section 15 five years ago; he has a house and stables. He owns 5 horses and 75 head of cattle. He has lately opened a general store and made application for a post office. Almost every homestead in this township was taken up by Galicians last summer.—*P. T. C. Dumais, D.L.S., 1903.*

Township 34.—A fairly good trail from Yorkton passes on sections 1, 12, 13, 24, 25 and 36. It is the easiest way to reach this township. The surface is gently rolling, being more broken along Conjuring creek, where patches of prairie are found, especially in the eastern part. There is some good poplar fit for building on almost every section, and some 200 or 250 spruce averaging from 8 to 20 inches in diameter scattered on the northwest part. Second growth poplar, willows and scrub cover the whole township. Good hay is found in quantity in the numerous sloughs throughout the township. A good and permanent supply of water is found in Conjuring creek and Horse creek in the north half of the township. The climate is the same as that of northern Manitoba. There is no water-power, no stone quarry, no coal and no economic minerals in this township. Dry poplar spruce and tamarack are found on almost every section, for fuel. Game is represented by partridge, prairie chicken, rabbits, mink, muskrat, &c.—*Paul T. C. Dumais, D.L.S., 1903.*

Township 35.—A wagon trail from Yorkton, which is fairly good, is the easiest way to reach this township. The soil is clay, with a few inches of black loam, and in many places gravel is found. The surface is gently rolling, being somewhat broken along the Assiniboine river and the lakes along it. It consists of patches of prairie on both sides of the river, and small timber and scrub in the northeast and southwest corners. Poplar from 6 to 15 inches in diameter is found on sections 1, 3, 4, 9, 10, 15, 16, 17, 20, 21, 29, 22, 28, 33, 32 and 31. Some spruce are scattered along the river. Hay in ample quantity and of good quality is found in the numerous sloughs throughout the township and along Robinson creek. Water is fresh and permanent. The Assiniboine enters this township on the northeast quarter of section 33 and flows through it in a southeast direction to the southeast quarter of section 12, where it crosses the east boundary of the township. It again curves in for a few chains on

section 1. Water in Lake Lomond is very high this year on sections 10, 11, 12, 1 and 2. The squatters were not able to make any hay in the bay at the northwest end, which in dry years is a hay meadow. The outlet is at the southeast end on section 1. Robinson creek enters the township on section 31 and empties in Lake Lomond on section 10. Its average width is 15 feet and depth 4 feet. Of Lake No. 4 on sections 28 and 21, not much can be said, except that it was covered with gulls while I surveyed it. It has an inlet and outlet which flows into Robinson creek. Lake No. 3 on section 14 has no inlet nor outlet, but it is supposed to connect with the Assiniboine by an underground passage, as it keeps the same level as the river. It is 58½ feet deep at about the centre. The river and these three lakes are full of fish, consisting of pike, pickerel, carp or gudgeon. The Assiniboine is from 40 to 100 feet wide all through this township, and on sections 27 and 22, it widens into two lakes, which I numbered 1 and 2. There is one small rapid on section 23, but is of no consequence. The climate is the same as that of Manitoba. There was frost last summer, but the same thing happened throughout the west. Fuel consisting of dry spruce and tamarack, poplar and cotton wood is found almost everywhere. There is no coal, no stone quarries and no minerals in this township. Game is represented by ducks and grouse, but prairie chickens and rabbits are also plentiful. Robinson Bros. squatted on section 11, seven years ago; they own some 300 cattle and 20 horses. They have broken some land on section 14, which gave them a fair crop this year.—*Paul T. C. Dumais, D.L.S., 1903.*

Township 36.—A fairly good trail from Yorkton passes on sections 24 and 23, township 35, range 6, from where it is easy to reach the southern sections of this township. The soil is clay, covered with 3 to 6 inches of black loam. I found gravel in many places. The southeast part is more suitable for farming. The township has a gently rolling surface, more broken near the Assiniboine. A small mountain on section 20, some 300 feet high, is called 'the Mound.' The township is covered with thick poplar bush in the northern and western parts. The southeastern part is covered with small poplar and willow scrub. There is prairie on sections 4, 9, 17 and 8. Poplar 8 inches in diameter covers the north half of the township, and sections 6, 7, 18 and 15 and parts of sections 5, 8 and 16 are also covered with poplar, some of which is good for building. Hay of good quality is found in the numerous sloughs throughout the township. Assiniboine river enters the township on southwest corner of section 30 and flows through it in a southeasterly direction. It leaves the township on southeast quarter of 4. It contains a few small rapids of no importance. Its depth varies from 3 to 15 feet; its width from 40 to 100 feet; current 1 to 5 miles per hour. There is no water-power and no land subject to flooding. The climate of northern Manitoba prevails here. Poplar for fuel can be found in abundance. There is no coal, stone quarries or minerals in the township. Prairie chicken, grouse and rabbits constitute the game.—*P. T. C. Dumais, D.L.S., 1903.*

Range 7.

Township 33.—A fairly good trail from Yorkton passes on sections 2, 3, 10, 15, &c., of township 33, range 6, from where it is easy enough to reach this township. The surface, which is gently rolling, is covered with a dense second growth of poplar and willows. Numerous bush fires have destroyed the big timber that was there some years ago. The climate is the same as northern Manitoba. There is no coal, no stone quarries, no water-power and no minerals in this township. The soil is black loam averaging from 4 to 10 inches, with clay subsoil and is suitable for farming. Red deer and elk were seen while I was surveying this township. Good fresh water is found in sufficient quantity and is permanent in the numerous sloughs and small creeks.—*Paul T. C. Dumais, D.L.S., 1903.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN—RANGE 7.

Township 34.—A trail which is fairly good from Yorkton passes on sections 1, 12 and 11, township 35, range 6. From section 11 a hay trail leads to section 5 and 6 from where the northeastern part of township 34, range 7, is of easy access. The surface is gently rolling, being more broken along Conjuring creek and chiefly covered with a thick growth of young poplar and willows, with scattered spruce averaging from 6 to 18 inches. The soil is clay, covered with from 2 to 8 inches of black loam and in some places gravel is found. I do not think this township suitable for farming. Hay in small quantity is found along Conjuring creek and its branches. A good permanent supply of water is furnished by this creek, which is from 20 to 25 feet wide and 2 to 6 feet deep. The climate is the same as in northern Manitoba. There is no water-power, no stone quarries, no coal and no minerals in this township. Dry poplar and spruce for fuel are found on every section. Game is represented by red deer, antelope (jumping deer) and elk. Traces of bears were also seen.—*P. T. C. Dumais, D.L.S., 1903.*

Township 35.—A fairly good trail leads from Yorkton to section 11, township 35, range 6, and from there a hay trail to section 5 and 6, township 35, range 6, from where range 7 is comparatively easy of access. The soil is yellow clay with 2 or 3 inches of black loam, which, I think, is suitable for farming. The surface is gently rolling and scrubby in the southern half, while the northern half is covered with a thick bush of poplar averaging from 4 to 18 inches in diameter. Hay is found only in the southeastern part and not in great quantity. Water supply is sufficient and permanent. The climate is the same as northern Manitoba. There is no water-power, no coal, no stone quarries and no minerals in this township. There were some bears in the north of the township and tracks of elk, foxes, mink, &c., were also seen.—*Paul T. C. Dumais, D.L.S., 1903.*

Range 8.

Township 24.—The most part of this township is settled by Galicians and a few English-speaking people. These last settled there a good many years ago, and raised cattle, but now all are engaged in farming. Timber for building is found only in sections 31, 32, 28 and 29, but any amount of willow used for fencing has been cut and lots more of the same is available. The soil is first-class, and good for all agricultural purposes, and is peculiarly suited to the Galicians, as it is rolling, and the soil alternates from sandy to sandy loam, allowing them to raise any kind of vegetable. The soil, however, is first-class. The most part of this township might be very dry in a dry year. All the Galicians seem to be prosperous, and pleased with their farms and new surroundings.—*A Bourgeault, D.L.S., 1903.*

Township 33.—The east and north outlines are entirely covered with poplar from 2 to 4 inches in diameter, with willow and poplar brush. The soil is black loam, with sandy clay subsoil. Hay can be found in nearly every marsh, but only of a medium quality. Ducks, partridges and prairie chickens are in good number.—*J. F. Richard, D.L.S., 1903.*

Township 34.—This township varies from nearly level to gently undulating, and is entirely covered with a young growth of poplar of 2 to 4 inches, with very strong willows and poplar brush. In the western half a heavier growth with larger poplar is found. The soil is mostly black loam of from 2 to 4 inches depth, with a good sandy clay subsoil, and is very well adapted for general farm purposes. Hay can be had in nearly every slough and marsh, but of medium quality. Several small creeks run through the township in an easterly or southeasterly direction. The water is good. No water power, no minerals of any kind or stone quarries were found. Wild ducks, partridge and prairie chickens are in good numbers. The last frost was on June 8 and the first on September 8. Winter set in about the middle of November.—*J. F. Richard, D.L.S., 1903.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN—RANGE 8.

Township 35.—The township is accessible by the trail from Sheho, Assa., to Stonewall lake, going as far as Mr. Walter Tullock's by following the south shore of the lake, then in an easterly direction to township 33, range 8, and then due north to township 35. The trail is fairly good up to Mr. Tullock's, but beyond is very rough, having been opened by myself. This township is generally slightly undulating, and the soil is a good sandy clay. Sloughs with good water are very numerous. It is well wooded, with a thick second growth of poplar from 1 to 6 inches in diameter, and poplar and willow brush, with a few bluffs of spruce. Hay is found in nearly every slough, but of only medium quality. Two or three creeks with good water flow through the township in an easterly and south-easterly direction. There is no water-power, no minerals of any description and no stone quarries. The summer was very wet. The last frost was on June 7 and the first on September 8. Wild duck, partridge and prairie chickens are in good numbers, and indications of moose and bears were seen. This township is well adapted for general farming purposes.—*J. F. Richard, D.L.S., 1903.*

Township 36.—The route to follow to reach this township was described in township 35, range 8. The soil is of a good quality, being sandy clay and most suitable for general farming or raising cattle. Sloughs, marshes and willow swamps, with fresh water, are very numerous. This township is gently undulating and mostly covered with poplar from two to four inches and poplar and willow brush. On section 36 and part of section 25 the poplar is large, some up to 18 and 24 inches. In sections 6, 7, 18, 19 and 17 patches of prairie were met, and 18 and 19 are mostly prairie. In the northwestern part of this township numerous spruce swamps exist with clumps of spruce 8 to 12 inches in diameter. Hay is found in hay marshes or sloughs, but not in great quantity or of a very good quality. The creeks running through this township have fairly good water and are permanent, their average width is 6 to 10 feet with a depth of 18 inches and current one and a half miles per hour. The summer was very wet and warm, especially during July and August. The last frost was on June 8, and the first at the beginning of September. The fall was very fine, and the first snow came about the middle of November. For fuel wood is plentiful through the whole township. No minerals of any kind were seen and no stone quarries. Wild duck, prairie chickens and partridge are plentiful; also traces of moose and bears were seen.—*J. F. Richard, D.L.S., 1903.*

Range 9.

Township 24.—The most part of this township is settled by Galicians, there being few English-speaking people. All are engaged in mixed farming. There is no timber worth mentioning, the only poplar valuable for building being in small scattered bluffs. Generally speaking, the country is rolling and covered with scrub. The soil is rated first-class, and is good for all agricultural purposes, particularly for the requirements of the Galicians, as it alternates from a sandy soil to a sandy loam suitable for raising all kinds of vegetables, which constitute their principal food. I believe that these people will become good farmers.—*A. Bourgeault, D.L.S., 1903.*

Township 35.—This township is rolling country, more or less bushy and scrubby, in some places overgrown with poplar brush averaging from three to four inches in diameter; however, there are some poplar bluffs good for building, especially on sections 2, 6, 7 and 18, the remainder of little use except for rails. There are also a few scattered dry spruce, some of them windfall. As to the soil, it ranks first-class, but taken altogether it is not very well adapted for farming purposes owing to the numerous sloughs and swamps which, however, are good for either hay or pasture. Sections 30, 31 and 32 are pretty well adapted for farming land. The water either in sloughs or lakes is splendid. If this township were completely burned over the land would become valuable for farming purposes.—*A. Bourgeault, D.L.S., 1903.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN—RANGE 9.

Township 36.—This township is more or less bushy, the timber for building is very limited, but large quantities of fence rails can be cut. The surface is rolling, with a slope towards the north boundary. There are some very fine spots of prairie. Owing to the extra quality of the soil in this township, a fire to clean off the growth of scrub is very desirable. I saw last fall after the survey an example of the way in which this can be done by fire. There are some creeks verging northwest which with a little work will largely help the drainage of the south part of the township. The water either in creeks or sloughs is good; I did not notice the slightest taste of alkali. According to my experience, it is a particularly good township for mixed farming, as large quantities of hay can be secured in the numerous sloughs and hay marshes and also from hay land.—*A. Bourgeault, D.L.S., 1903.*

Range 10.

Township 35.—This township is all bush or brush. The sections 17, 18, 19, 20, 21 and west half of 16, might be kept as a timber reserve, the poplar being good and averaging from 10 to 15 inches in diameter. The advantage of keeping these sections as a timber reserve is that they are nearly surrounded by lakes, marshes and swamps, which would be a good protection from fire. The soil is rated first class, being black loam alluvial soil and clay loam subsoil. Firewood and building timber are easily procurable. The water everywhere in this township is very good.—*A. Bourgeault, D.L.S., 1903.*

Township 36.—This township is pretty bushy; large quantities of rails and some timber fit for building can be secured especially on the west part. There are two or three bluffs of spruce good for lumber in sections 17 and 20. The soil ranks first-class, being a good black loam of a satisfactory depth and clay loam subsoil; there are no stones whatever. At the time of the survey it was very wet and all the sloughs were filled, and the low land was submerged. The north half of this township, up to half a mile from the base, slopes towards the north; this will be in the future a great help for drainage. The enormous work done a good many years ago by the beavers has had the effect of storing the water and keeping a good portion of the south half under water, but to-day with comparatively little work the greater part can be drained. In a short time, I presume, the fire will sweep up all the wood that remains and will leave a cleared open prairie. The water is very good either in the sloughs or creeks, and a plentiful supply of hay can be secured. Taken as a whole, this township in a short time will be a fair one for agricultural purposes. I met some people during the survey looking up farming land.—*A. Bourgeault, D.L.S., 1903.*

Range 11.

Township 27.—It is easy to reach this township by a trail running northeast from Qu'Appelle or by a trail running south from Foam Lake post office; both are frequented and in good condition when the season is not too wet. The soil is generally black loam to a depth varying from 3 to 12 inches with clay subsoil in the west half of the township. The east half is more sandy and gravelly. A rancher squatted on section 17 six years ago. He owns some sixty horses and two hundred and fifty cattle. He told me that he never had any success in farming. If this is true, it would prove that this township is better adapted for ranching than for cultivation. The surface is rolling and in the south part is more broken by small knolls and ranges of hills. There are some patches of prairie in the southwest part. The north is more timbered and covered with scrub of small poplar and willows. There are many bluffs of good

building poplar, scattered throughout this township, especially on sections 30 and 31, where trees of 12 and 15 iaches have been cut. Any quantity of fuel can be found on almost every section. Hay is plentiful on every section on account of the numerous sloughs that are met with all over the township. Water is fresh and good everywhere except in Horse lake, where it is alkaline. The supply seems permanent. However, it is said that some seven or eight years ago, cattle could be watered in Horse lake only. There is no stream or creek of any consequence only a watercourse running southeast into Veilleux lake, (named after the man who first saw it), which is crossed by the north boundary of section 25. Wet seasons make the country soft, but it is too high to be flooded. As to climate, summer frosts are frequent and are the drawbacks for the culture of cereals. There was still frost in the ground, eight inches from the surface, on the 10th of May. There is no water power. The only kinds of wood for fuel are poplar and cottonwood; much of it is lying on the ground where the fire passed. No mine or quarry exists in this township. Game is plentiful; duck, prairie chicken, grouse, crane, geese and wild turkey abound, especially in the fall.—*Paul T. C. Dumais, D.L.S., 1903.*

Range 12.

Township 37.—The soil throughout consists of a rich black loam with a subsoil of clay. The land, however, at the time of the survey was covered with large sloughs of deep water. A small creek coming from the southeast into section 3 overflowed its banks and in consequence all the low lands were flooded. Old settlers assert that some seven years ago there was not a drop of water where to-day a large and deep lake covers part of sections 32 and 29. This lake has been surveyed but the large sloughs were not traversed. There is a considerable quantity of poplar bush, but nothing of great value. The timber consists entirely of poplar of an average of 4 inches in diameter. The country is covered with thick brush and willows. There is no mineral of any kind. I may state that in my opinion, if the creek above mentioned were enlarged and deepened, a great portion of the numerous sloughs could be drained and a very large quantity of hay would then be available.—*A. F. Martin, D.L.S., 1903.*

Township 38.—The land rises like an amphitheatre from the centre eastward and westward. Pipe creek comes in this township in section 3 and empties into Nut lake in section 32. The water in this creek is good. At the time of the survey, water ran over the bank of the creek and flooded the adjoining lands. There is a good fall to Nut lake and it is believed that all the wet land can be drained, thus providing a large area of first class hay lands now inaccessible on account of the overflow from Pipe creek. The soil consists throughout of a rich black loam with a subsoil of clay and would rate first class but for the numerous stones covering the lands. There is no timber of any great value for commercial purposes, but there is a good quantity of timber very useful to settlers both for building and fencing purposes. The two eastern tiers of sections are well wooded with poplar varying in size from 3 inches to 6 inches in diameter. The land throughout is very scrubby. The northern part of the township or at least the greatest part thereof, is reserved for the Indians. This reserve is bounded on the south by a straight line across part of sections 26 and 29 and across sections 27 and 28; to the northeast by Prairie Butte creek running to the correction line through sections 34 and 35 and to the northwest by Pipe creek and Nut lake. There is no sign of any minerals.—*A. F. Martin, D.L.S., 1903.*

Township 45.—This township is difficult to get into by trail. I succeeded by following up the trail from Fishing lake running north by Nut lake to Barrier river crossing then to Crooked plains, thence along the easterly boundary of the range. This can be accomplished only in the dry part of the season. The Canadian Northern Railway will probably be completed this year through the centre of the township and

this will afford a better means of access. The soil is generally shallow leaf mould. It it not at present adapted for any agricultural industry. The surface is generally level but rolling gently in places. It is more rolling on the southwest quarter of the township. There is no prairie, for the township is timbered all over with much broken poplar, with dense willows, hazel and othr scrub. There is much spruce scattered throughout varying from 4 to 30 inches in diameter and a great deal of muskeg, especially in the northeast quarter, covered with several feet of moss and below this ice all the year round. The only good hay is to be found on the boundary of sections 5 and 6, where there are about 15 acres. The water is good, the streams generally running northerly. Crooked creek, the largest being seven feet wide and two feet deep with sluggish current, flows through sections 5 and 6; it overflows its banks and perhaps 30 or 40 acres of these sections. The indications are that the winter commences here several days earlier than it does 100 miles further south. I saw no marked indications of summer frosts. The fuel is the timber before mentioned, there being no indications of coal or lignite. There are no stone quarries or minerals. Partridges, marten and mink are numerous; a few moose and bears are found. Prairie chickens are seen very rarely.—*John J. Dalton, D.T.S., 1902.*

Range 13.

Township 37.—Access to this township is via Sheho, the present terminus of the Manitoba and Northwestern branch of the Canadian Pacific Railway. The road is fairly good except in wet seasons like the past year. The soil is a rich black loam underlaid with clay and is very fertile. The surface is gently undulating, very much broken by ponds, sloughs and marshes. The latter in moderately dry seasons would produce hay of good quality in large quantities. Surface water is everywhere present with some drainage coulees but no streams of any size. Grains mature in adjoining townships and the locality does not appear to be subject to summer frosts. Dry poplar suitable for fuel abounds in all parts of the township and green poplar suitable for building logs may be obtained in the bluffs. The larger part of the surface is covered with scrub poplar and willow second growth. No minerals nor outcrops of rock were seen. Ducks, prairie chickens and partridges are plentiful, while the ponds and marshes seem literally alive with muskrats.—*Thos. Fawcett, D.T.S., 1903.*

Township 38.—Access to this township at present is via the Manitoba and Northwestern branch of the Canadian Pacific Railway to Sheho, thence by wagon road to Nut lake and an old Indian trail which runs westerly through the township to Ponass lake. The soil is a black loam, underlaid with a clay subsoil. In quality the soil is very productive. Where not covered with water the greater portion of the surface is covered with scrubby timber of poplar and willow. Some bluffs contain trees large enough for building and fencing purposes, while there is a good deal of poplar (fire-killed) suitable for fuel. Many of the ponds which last season were filled with water in ordinary seasons would supply hay enough for all purposes of local ranching. In wet seasons hay lands would be scarce. Fresh water is abundant in sloughs and ponds, but there are no running streams in the township. Climatic conditions seem favourable for the maturing of both vegetables and cereals. There are no indications of coal nor of minerals of any description, but fuel will be plentiful in the shape of dry poplar for many years to come. Owing to the nearness of Nut lake Indian reserve, large game is pretty well hunted out, but ducks, partridges and prairie chickens are plentiful. Muskrats, sable, foxes and mink are the fur-bearing animals.—*Thos. Fawcett, D.T.S., 1903.*

Range 14.

Township 31.—This township may be reached by the trail from Fishing Lake post office to Touchwood hills, which passes through the southeast corner of the township.

I believe there is now a new trail from Foam Lake post office which is rather shorter for parties going in from all points east. The soil is generally light, black and loamy, averaging 10 or 12 inches in depth, with a subsoil varying from light sand to heavy clay, suitable for mixed farming. The surface is gently rolling prairie, with numerous small sloughs generally with a great deal of poplar and other scrub scattered in patches throughout the township. On section 19 there is about 10 acres of poplar timber averaging 10 or 12 inches in diameter; besides this there are only a few trees scattered over the country. Hay is well distributed generally, but is not found in large areas. The quality is good. The water is good and fresh, but greatly in excess at the time of survey and streams were overflowing their banks. The main streams were about 5 feet deep, whereas in their normal conditions they would average about 25 links wide and 12 inches deep. I do not think the lands are liable to be flooded beyond what the field notes show. There are no water-powers or mill sites. There is nothing remarkable in the climate, and no summer frosts were observed during my stay in the vicinity. The only fuel procurable is the poplar in this and the adjoining townships, which is plentiful though small. There is neither coal nor lignite, and no stone quarries or minerals. Small game such as prairie chickens and ducks is plentiful. Small deer and foxes were seen. There is no sign of fish in the streams, which is said to be a peculiar fact with regard to all streams running into the Quill lakes.—*John J. Dalton, D.T.S., 1902.*

Towship 34.—This township is open prairie, with the exception of patches of willow and a few scattered bluffs of dry poplar hardly worth mentioning. The soil is for the most part black loam and clay subsoil, good for any purposes of farming, though in the north tier of sections the soil is a heavy clay. It is well watered by creeks and marshes of good water. The Little Quill lake in the southwest corner occupies about ten sections. Along the margin of the lake quantities of hay can be secured. The banks of the lake are composed of boulders and gravel.—*A. Bourgeault, D.L.S., 1902.*

Township 37.—Access to this township is via the Manitoba and Northwestern branch of the Canadian Pacific Railway to Sheho, thence via Nut Lake trail to a point within 7 miles of the township. The Canadian Northern Railway is within 12 miles of the northwest corner. The soil throughout is a rich black loam, with clay subsoil. The surface is generally level, with few undulations. During the past season a considerable percentage of the flat ground was covered with water. The entire area not under water, with the exception of a few spots, is covered with scrub timber, most of it second growth; the larger timber having been killed with fire some years ago. There are some clumps of poplar reaching 12 inches in diameter, while the second growth seldom exceeds 6 inches in diameter. In ordinary dry seasons a large quantity of hay would be procurable along the margin of Ponass lake and the adjoining sloughs. Fresh water is abundant in lakes and ponds; there are no streams of any considerable size, but there are drainage coulees towards the south. Vegetable growth is luxuriant, with no indications of injury from summer frosts. Dry poplar for fuel is plentiful in all parts. No outcrops of rock nor of any minerals of economic value were seen. The lakes and ponds were alive with ducks and other water-fowl, while prairie chickens and partridges are plentiful in the woods and brulé portions of the township. Ponass lake seems to be the home of the muskrat; their houses may be counted by thousands in the shallow places.—*Thos. Fawcett, D.T.S., 1903.*

Township 38.—This township is reached from Nut lake by an old trail which runs from there to the Quill plains, in dry seasons by crossing a narrow point of Ponass lake. The road is good enough in ordinary seasons. The soil is a rick black loam, with clay subsoil suitable for growing anything requiring a very rich soil. The surface, where not covered with water, is nearly all timbered with poplar and willow, the former running up from saplings to a diameter of 10 or 12 inches. There are some patches of fire-killed timber, in which only the small trees are green. When not wet,

an abundant supply of hay would be obtainable along Ponass lake. During the past two or three years the lake has overflowed its usual limits. All the water in lakes and ponds is fresh in wet seasons, but in dry seasons it is more or less alkaline. There are no streams or waterfalls in the township, but the water seems to flow out of Ponass lake both northeast and southeast, so that it forms a sort of watershed. The lake, which extends the full length of this township and nearly 4 miles down into the township to the south, covers more than one-third of the entire area. The climatic conditions seem all right for ripening vegetables and grains. Dry wood suitable for fuel is pretty general. No indications of coal, outcrop of stone nor indications of minerals of economic value were observed. What is now Ponass lake would be very valuable meadow land if drained, and might be considered nearly as valuable as the higher portion of the township, as the cost of draining would not be such a large item, considering the large area which could be reclaimed. The ponds and lakes during open water are covered with ducks and the woods well stocked with grouse, while the whole place seems literally alive with muskrats, skunk, mink and foxes.—*Thos. Fawcett, D.T.S., 1903.*

Range 15.

Township 34.—The only portions of land good for any farming purposes in this fractional township are sections 36 and 35; the north half of section 34 ranks 1st class as hay land. The balance is alkaline. The shores of Little Quill lake are generally gravelly, and at some places big boulders of reddish colour are piled up.—*A. Bourgeault, D.L.S., 1903.*

Range 16.

Township 26.—The two southern rows of sections in this township have been greatly opened by fire, and they are now mostly ready for settlement. The soil is fair, except in the vicinity of the Indian reserve, where the land becomes hilly and much broken by sloughs and partly covered with a second growth of poplar and willows. As to the centre row of sections comprising sections 13, 14, 15, 22, 23 and 24, they are still covered with dry poplar mixed with a thick second growth of young poplar and willow. The land becomes very hilly near the reserve and is all through much broken by lakes and sloughs. The soil also decreases in quality. The timber found in this township is mostly all dry and good only for firewood and some building purposes.—*P. R. A. Belanger, D.L.S., 1903.*

Township 37.—The southern two miles of the township is covered mostly with a thick growth of willows and scrub, and the northern four miles is thickly wooded with a second growth of poplar. Here and there a bluff of poplar trees four and five inches diameter is found. The timber would be of great benefit to intending settlers for building, fencing and fuel purposes. The soil consists of a rich black loam with a sub-soil of clay. There are numerous potholes, sloughs, and also large sloughs. Good water is very hard to get. Hay can be found in small quantities in and about the sloughs. There is no sign of any minerals.—*A. F. Martin, D.L.S., 1903.*

Range 17.

Township 34.—The only portion in this township fit for any agricultural purposes, is the north half of section 36. As to the remainder of this fractional township, the soil is alkaline and swampy. Big Quill Lake is a pretty body of water; the margin of it is generally gravelly and stony.—*A. Bourgeault, D.L.S., 1903.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN—RANGE 17.

Township 37.—Frequent fires have destroyed most of the large timber. At places, fallen timber is piled up to a height of from six to fifteen feet. A thick growth of second growth poplar has taken the place of the former large timber. There is still a large quantity of poplar from four to six inches in diameter to be found. This timber is without any commercial value, but will be useful for intending settlers, both for building and fuel. The land is covered with a dense growth of willows. The soil consists of a rich black loam with a subsoil of clay, and the land would rate first-class if it were not for the numerous pothole sloughs which are scattered throughout the township. There is no sign of minerals. Excellent water may be found on digging anywhere. Hay is very scarce.—*A. F. Martin, D.L.S., 1903.*

Township 38.—This township is situated about 125 miles from Duck Lake station on the Canadian Pacific Railway, and about 12 miles from the new railroad now being constructed; the trail by which it was reached is a very good one. The soil is black loam from six to eighteen inches deep, with gray clay as subsoil; the ground is level and entirely covered with timber or high thick willows; about half of the township is covered by large marshes. The timber is from three to seven inches in diameter; there is a great quantity of dry and good timber; half of it is from eight to fifteen inches in diameter. There are no hay marshes. There is no stone nor sign of minerals. There is no water power. Climate is good; no summer frost is noted. Game is plentiful—deer, antelope, fox, wolf, muskrats, badgers and snipe of all kinds.—*C. E. Lemoine, D.L.S., 1903.*

Range 18.

Township 34.—The western and northwestern parts of this township contain good fair land that would be adapted for cultivation. The eastern part adjoining Big Quill lake is very flat and low and is largely impregnated with alkali, which renders this part unsuitable for cultivation. The water in the lake is also quite alkaline. The lake is very shallow for a good distance from the shore. The township is largely prairie, except the northwesterly part, which has a few small bluffs of poplar, but it is not of sufficient size to be of any value. There are no hay marshes in any part of the township though there is fair grass in the western and northwestern portions. There are not many ponds in this township and the few there are are chiefly alkaline as is also the lake. There are no streams in any part nor water power. Fuel is very scarce, only in the few small poplar bluffs. There is no appearance of coal or lignite anywhere. No stone or minerals of any kind were to be seen. Game is scarce, only a few ducks on the lake and no deer or antelope were observed.—*James Warren, D.L.S., 1903.*

Township 39.—This township is situated about 100 miles from Duck lake station. The best way to reach it is by the road from Duck lake passing through Batoche and 'One Arrow' Indian reserve, then by the Prince Albert and Troy road as far as section 5, township 39, range 24, where I opened a good trail through townships 37, 38, 39, ranges 20, 19 and 18. The soil is black loam from 10 to 18 inches in depth with yellow clay as subsoil and is first class for farming. It is almost all rolling prairie with a few small ridges in the northeast part of it. About half of it is covered by small bluffs of poplar and willows, more especially on the east part of it, the rest is open prairie. The poplar is from 3 to 5 inches in diameter, and is situated on the eastern part of the township. There is but one hay marsh and it is 6 miles long and from 20 chains to a mile wide, running north and south and it contains about 10 or 15 thousand tons of good hay. It is situated in sections 4, 5, 8, 9, 16, 17, 20, 21, 28, 29, 32 and 33. The water is plentiful, good and permanent. There is no water power. The climate is good with no summer frosts. Fuel is plentiful and can be had from all the townships adjoining. There are no stone quarries and no sign of minerals. Game

is plentiful; deer, antelope, fox, wolf, badgers, cranes and snipe of all kinds being found.—*C. E. Lemoine, D.L.S., 1903.*

Township 40.—This township is situated about 100 miles from Duck lake, Canadian Pacific Railway station. The best road to reach it is the road from Duck lake passing through Batoche to the Indian reserve 'One Arrow,' and then by the Prince Albert and Troy road as far as section 5, township 39, range 24, where I opened a good trail through townships 37, 38 and 39, ranges 20, 19 and 18. The alluvial soil is from 6 to 18 inches of black loam, but unfit for farming, as it is all covered by windfalls and high willows, except sections 3, 2 and 1. The west part is rolling, the centre contains a large lake, marshes and muskegs; the timber is dry except a few small bluffs of poplar, which are surrounded by marshes and which the fire could not reach. The timber is poplar and a few cottonwood, from 5 to 8 inches in diameter situated on section 31, the rest of the timber is small poplar from 2 to 3 inches in diameter. There are no hay meadows. The water is plentiful, good and permanent. There is no water power. The climate is good and no summer frost was noted. Fuel is plentiful and can be had from all the surrounding townships. There are no stone quarries or minerals. Game is plentiful; deer, antelope, fox, wolf, duck, crane and snipe of all kinds are common.—*C. E. Lemoine, D.L.S., 1903.*

Township 41.—I went to this township by the Canadian Pacific Railway to Saskatoon on the Prince Albert branch. I completed my outfit at the latter place and went easterly across the Saskatchewan and along a trail meeting the third meridian at the boundary between townships 37 and 38. From this point I continued easterly, more or less along the same trail, making surveys as I proceeded, to township 38 in range 24, at Mount Carmel. From Mount Carmel we continued easterly along a well used trail to a point northerly from Deadmoose lake. We then left the main trail and went northeasterly to the southern end of Lake Lenore and continued around the eastern side of that lake to the south boundary of township 41, in range 20. We commenced surveys again at the latter township. We passed up through the centre of range 20 across township 20, and then easterly across range 19 and part of 18 to the middle of the herein described township. The route was bad and much labour had to be expended to make a possible road. A better route into this section of country is to be found from the north (Flett's Springs or Melfort). The soil is black loam with a subsoil of clay. Some of the township might be used for farming, other parts for ranching. Some portions of it are prairie in patches, generally it is covered with scrub and poplar timber. The scrubby parts cover the greater area. The timber is composed of poplar and balm of Gilead. Some of this is of good size up to 15 inches in diameter, and is in patches all over the township. There is not sufficient to reserve for lumbering purposes. The marshes and flatter parts yield grass which can be made into hay. Pea vine are seen amongst the scrub generally where not too wet. The water is suitable for general use. A considerable area is covered with lakes; I suppose these to be permanent. There are no streams to note. In wet seasons the lower and flatter lands would be covered with water. Flooding would not occur except from excessive precipitation. There are no water-powers. I saw no special indications of summer frosts. Poplar wood for fuel can be had everywhere. No coal or lignite was found. No stone quarries exist. No economic minerals were seen. Ducks are numerous. Bears are common. The township is probably the best for settlement of any I have surveyed up to date this season.—*G. B. Abrey, D.L.S., 1903.*

Township 42.—I reached this township by way of Saskatoon on the Prince Albert branch of the Canadian Pacific Railway, where I procured horses and wagons, and after crossing the Saskatchewan went easterly along a trail to the third meridian intersecting it at the boundary between townships 37 and 38. I continued easterly off and on the trail subdividing townships as I went, having my last camp at Mount Carmel in range 24. From Mount Carmel I went easterly again along the same trail

to a point north of Deadmoose lake; I then left the main trail and went to the southern end of Lake Lenore, meeting a trail again. I followed this last trail to the south boundary of township 41, range 20. I commenced subdividing again here, and cleared, brushed, and bridged roads into this township. This making of passable roads over which to move our outfit required much labour and for a very indifferent road. A much better way to get into this section of country is from the north, say from Flett's Springs or Melfort. The township is generally flat and wet; some ridges are found in the northern portion. The southern portion is very wet and marshy. The surface soil is black loam of good depth with clay subsoil, and the country is better suited for ranching than farming. The northern portion has prairie patches here and there with scrub windfall and larger timber. The southern part is generally covered with willow scrub and other small growths. No very large timber is found, only poplar, balm of Gilead and scrub are found. In dry seasons probably large quantities of hay might be made in the southern parts. Plenty of good water was found during the survey and probably it is permanent. Barrier river crosses the township. It is fordable, having a stony bottom in places. At other places it is marshy and difficult to cross. The stream at one fordable place may be about 20 feet wide and 1 foot deep with a good current. The township (the flatter portions) would flood with wet seasons and heavy rains. Streams are not sufficient for water-powers. The climate has no features to note; we observed no indications regarding summer frosts. Poplar for fuel may be obtained easily. No coal or lignite was seen. There are no stone quarries and no economic minerals were seen. Ducks in some of the wet places were seen, with prairie chickens in the drier parts. Three lakes were traversed.—*G. B. Abrey, D.L.S., 1903.*

Range 19.

Township 34.—This township taken as a whole may be reckoned a first class township, though in the northern part there are a good many ponds or sloughs. A part of the marsh at the northeast end of Jansen lake extends into this township in which there are some hay lands. The greater part of the soil is clay loam and would be suitable for grain and for roots of all kinds. There are a great many bluffs of small poplar, none of which is of any commercial value, only fit for small buildings. There are a few hay marshes in the north and northwestern parts of the township. There are a great many ponds of water, all of which we found to be good and fresh with no alkali. There are many of these would give a permanent supply. There are no streams of any kind and consequently no water-power. The climate is fairly good and not more liable to summer frosts than the surrounding country. The only fuel to be obtained is in the small bluffs of poplar in the north, but the supply is limited. There are no indications of coal or lignite. There are no stone quarries nor are there any indications of minerals of any kind. Game is scarce; only a few ducks on the ponds. No deer or antelope to be seen. There are parts of this township would be well adapted to grazing, as there is fairly good pasturage in parts. Taken as a whole, if well cultivated would make a good township for settling on.—*James Warren, D.L.S., 1903.*

Township 35.—The soil throughout consists of a rich black loam, with a subsoil generally clay. The land is covered with bluffs of second-growth poplar, willow and scrub, intersected with small openings. A creek, carrying very good water runs on the line between sections 26 and 27 and southeasterly through section 12. The two western tiers of sections are rather broken and bushy, but the land rates as first-class. Some building logs are found on sections 30 and 31, but the rest of the timber is only fit for fuel and fencing. On the whole this township is reckoned as one of the most advantageous for settlers. It is well adapted for farming or ranching. A great quantity of the very finest quality of hay can be gathered. Water in the wells and in

the sloughs is good. Part of sections 2 and 3 is covered with a large slough. There is no timber of any kind.—*A. F. Martin, D.L.S., 1903.*

Township 40.—This township is situated about 100 miles from Duck lake Canadian Pacific Railway station. The best road to reach it is the road from Duck lake passing through Batoche to the Indian reserve 'One Arrow,' and then by the Prince Albert and Troy road as far as section 5, township 39, range 24, where I opened a good trail through townships 37, 38 and 39, ranges 20, 19 and 18. The alluvial soil is 6 to 15 inches of black loam, it is all covered by windfalls and green poplar. The timber is poplar from 3 to 7 inches in diameter. There are no hay marshes. Water is plentiful, good and permanent. There is no water-power. Climate is good, no summer frost was noted. There was no sign of minerals or rock in place. Game is plentiful; deer, antelope, fox, wolf, duck, crane and snipe of all kinds are found.—*C. E. Lemoine, D.L.S., 1903.*

Township 41.—We reached this township by Canadian Pacific Railway through Winnipeg and Regina to Saskatoon. We then left the railway and proceeded by horses and wagons across the Saskatchewan easterly to the third meridian over a road well defined and in fair condition. This road intersected the third meridian at the boundary between townships 37 and 38. I continued along this road easterly subdividing townships as I went, making my last camp at Mount Carmel. From there I continued easterly passing a short distance north of Deadmoose lake. Near this point I left the main road and went northeasterly, passing the southern end of Lake Lenore, and continued around the eastern side of the lake to the south boundary of township 41, in range 20. I commenced subdivision again here and had to make roads to move supplies over by clearing the way, brushing and bridging the wet places and so on. The country is difficult to get through. This section is more easily reached from Flett's Springs or Melfort. The soil is black loam of good depth generally underlaid by clay. The ridges and hills are stony and gravelly in places, on account of its being so broken by sloughs and wet places it is suitable in dry seasons for ranching purposes. Very little prairie is found, though a few open spaces were passed through. Much scrub has grown up and a good deal of timber of fair size is scattered over the whole township in patches. The timber is poplar and balm of Gilead, large enough for buildings, but not of sufficient size for lumbering. The scrub is composed of willow poplar and balm of Gilead. Hay could be cut in all of the marshes in dry seasons, but the country is too wet this season to obtain much hay from them. The grasses in the wet places are the usual marsh varieties. On ground a little higher and amongst the scrub pea vines often occur. The water generally may be used for domestic purposes. Except during very dry seasons I would expect it to be permanent in the lakes and larger sloughs. There are no streams of importance; the land is only liable to be flooded from excessive rainfall. There are no water powers to be developed. The climate is similar to that of other portions in this latitude and locality. I noticed no indications of prevalence of summer frosts. Poplar wood for fuel may be obtained everywhere. No coal or lignite was seen. No stone quarries or economic minerals were discovered. Ducks abound in the lakes and marshes, and bears are plentiful.—*G. B. Abrey, D.L.S., 1903.*

Township 42.—I went to this township by way of the Canadian Pacific Railway to Saskatoon on the Prince Albert branch of that railway, where I procured horses and wagons. I crossed easterly over the south branch of the Saskatchewan and took an eastward trail to the third meridian, intersecting it at the boundary between townships 37 and 38. I made surveys of townships for some 30 miles from this meridian easterly, following closely along the trail, with my last camp at Mount Carmel in range 24. From this camp I continued easterly along the trail to north of Deadmoose lake, where I left the main trail and went northeasterly to the southern end of Lake Lenore to another trail. I followed this trail northeasterly around the lake to the

south boundary of township 41 in range 20, where I commenced subdividing again. In moving my outfit further I had to make roads almost continuously by clearing the way, bridging and brushing the creeks and marshes at much expenditure of time. I passed northerly through township 41, easterly across range 18, and into near the centre of this township. A much better way into these townships is from the north, from Flett's Springs or Melfort, on the line of the Canadian Northern Railway. This township is rough, and broken by many lakes and marshes, with some stony hills and ridges. In the lower and flatter parts there is a good depth of soil, but at present it is not adapted for general farming. It might in places be used for ranching. There is no prairie. Some large poplar and balm of Gilead have been cut and removed from the northwestern part to be sawn into lumber. There is a large amount of large timber of the same sorts remaining scattered over the township, but not of sufficient importance to reserve for timber; windfall is general, and scrub always covering the surface. I do not believe that much hay could be made. Water is abundant and permanent, and not alkaline. Many lakes are found, with a good many small creeks running through muskegs and lakes. There are no water-powers. The climate has no special features to note. Poplar fuel may be obtained everywhere. There are no stone quarries, and no economic minerals were seen. No coal or lignite was found. Ducks abound in the lakes, while bears are numerous, and were troublesome and annoying during the survey.—*G. B. Abrey, D.L.S., 1903.*

Range 20.

Township 29.—This township is situated 54 miles north of Craven, Canadian Pacific Railway station. The best way to reach it is by the Troy and Prince Albert road, which is a very good one as far as the 'Poor Man' Indian reserve. From there a very good trail passes through this township. The soil is black loam from 5 to 14 inches, with gray clay for subsoil. The first two tiers of sections from 1 to 12 are broken by two large ravines from 30 to 50 feet deep, in the bottom of which runs a small stream of soft water, which I believe to be permanent. The rest of the township is bare prairie with no timber. There is but one hay marsh, which is on sections 20, 29 and 32. It contains about 1,000 tons of good hay. There is no water-power. The climate is good; no summer frosts were noted. The only fuel obtainable is in the Touchwood hills. There is no sign of coal or lignite, no stone and no sign of minerals. Game is plentiful; deer, antelope, fox, wolf, badgers, geese, ducks, cranes and snipe of all kinds are found.—*C. E. Lemoine, D.L.S., 1903.*

Township 30.—This township is situated 60 miles north of Craven junction. The best road to reach it is the Qu'Appelle and Prince Albert road, which is a very good one as far as the 'Poor Man' Indian reserve; from there a very good trail passes through township 29, range 30. The soil is black loam from 3 to 10 inches deep and gray, yellow and white clay subsoils. The township is a bare prairie. There is no timber whatever. It is well supplied with water, which though not very good is fit to drink. There is a large lake about 15 miles in circumference and a few small coulees. There are four large hay marshes situated as follows: Section 34, 200 tons; sections 36 and 25, 500 tons; sections 15, 16, 21 and 22, 800 tons; sections 20 and 17, 100 tons, all of good quality. There is no water-power in the township. The climate is good; no summer frosts were experienced. The only fuel obtainable is in the Touchwood hills. There is no sign of coal or lignite, and no stone or sign of minerals. Game is plentiful; deer, foxes, wolf, badgers, antelope, geese, duck, cranes and snipe of all kinds are common.—*C. E. Lemoine, D.L.S., 1903.*

Township 31.—This township is situated about 90 miles from Qu'Appelle station by way of the Qu'Appelle and Prince Albert road, which is the shortest and best way to reach it. The soil is black loam from 5 to 12 inches deep, and gray clay as subsoil.

The township is bare prairie, and there is no timber whatever. The greater part of the township is hay land and too wet for farming. Fresh water is plentiful, and found on every section in the deep hay marshes. There is no water-power. The climate is good, no summer frosts being noted. The only fuel to be had is from Touchwood hills. There is no sign of coal or lignite, and no stone or sign of minerals. Game is plentiful; deer, antelope, foxes, wolves, badgers, geese, ducks, cranes and snipe of all kinds are found.—*C. E. Lemoine, D.L.S., 1903.*

Township 32.—This township is situated about half way between the town of Prince Albert and Qu'Appelle station, Canadian Pacific Railway. The best road to reach it is the Qu'Appelle and Prince Albert trail, which is very good in this dry season, but would not be so good in a wet season. This township is about half good land and half bad. The north part is very good for farming, but the south part is situated in the salt prairie, and is only good for stock raising. The soil is four to ten inches of black loam, with white clay for subsoil. There are some bluffs of willows in the northwest corner of sections 30, 31, 32 and 29, but nothing fit for fuel. The only good water to be found is in the few small marshes and in the large sloughs in the centre, but in dry weather this water would only be good for cattle. There is no water power. The climate is good; no summer frost was experienced. There is no sign of coal or lignite and no stone. The game is plentiful; deer, antelope, badgers, ducks, cranes, snipe of all kinds and geese are common.—*C. E. Lemoine, D.L.S., 1903.*

Township 33.—The soil is black loam four to ten inches deep, with subsoil of white clay. It is good for farming. It is about half prairie with willows and a few bluffs of poplar. It is very well supplied with fresh water in the large willow marshes, and the lake on section 31 and 32. There is no water-power in the township. The climate is good, no summer frost was noted. The only fuel available is willows and poplar. There is no stone of minerals of any kind. The game is plentiful ; deer, antelope, badgers, ducks, cranes, snipe of all kinds and geese are common.—*C. E. Lemoine, D.L.S., 1903.*

Township 34.—The northwesterly and southeastern portions of this township are covered with small poplar bluffs, with numerous small ponds. There is a good deal of grass and pasturage in these portions of the township would make good grazing for cattle, as shelter is abundant. The soil is first-class, though covered with bluffs in many places, and if cultivated would be well adapted for grain-growing. The bluffs in the township are of small timber, none being of any size and only fit for small buildings. There are no hay marshes in the township, only at the northeast of Jansen Lake, which is chiefly a large marsh covered with hay, which can be cut when the water is low in the lake. There is a long, narrow lake in the township, lying in a northeasterly direction, and from a quarter to half a mile wide. The water is quite alkaline and not fit for use for domestic purposes. There are no streams or creeks of any kind, as the township is quite flat. The only fuel is in the small bluffs on the township. No coal or lignite was seen nor any signs of them. No minerals of any kind. There is no game, only a few prairie chickens and ducks on the lake. We saw one or two deer, but they do not appear to be numerous. Taking this township as a whole it would be termed first-class, and well adapted for grazing.—*James Warren, D.L.S., 1903.*

Township 35.—The soil throughout consists of a rich black loam with a subsoil of clay. The surface, however, is so much broken by high ridges that the land can only rate as second-class. Between the ridges the land is covered with a dense growth of scrub and willows. There are numerous bluffs of second growth poplar, especially in the eastern half of the township. This poplar can be used for fuel or for fence rails. There is no big timber. A good quantity of hay can be got, but the land will have to be cleared of scrub and willows before it could be gathered. Water throughout is very alkaline, and particularly so in the wells. In the surface sloughs, however, the water is sweet. It is to be questioned if any water could be found in these sloughs in a dry

season. There is no mineral of any kind. A running creek, which I take to be a branch of Wolverine creek, runs nearly south through sections 31, 30, 19, 18, 7 and 6; it carries very alkaline water. —*A. F. Martin, D.L.S., 1903.*

Township 36.—The soil consists of a rich black loam with a subsoil of clay. Owing, however, to the country being broken by ridges and numerous pocket sloughs, the land only rates as second-class. A good deal of hay is found about the sloughs. Timber consists of poplar, mostly saplings in bluffs. Between the ridges the land is covered with a thick growth of willows and scrub. A creek running almost south from section 33, across the township carries about two feet of water, but the water is very alkaline. Water is sweet in all the pocket sloughs but good water is hard to get by digging. There is no mineral of any kind. The creek above mentioned is thought to be a branch of Wolverine creek.—*A. F. Martin, D.L.S., 1903.*

Township 41.—I went to this survey from Toronto, via North Bay by the Canadian Pacific Railway to Saskatoon on the Prince Albert branch of that railway. At Saskatoon I crossed the Saskatchewan and travelled easterly along a trail intersecting the second meridian near the boundary line between townships 37 and 38, from thence I continued easterly along the said trail subdividing several prairie townships as I proceeded, finishing these surveys from a camp on Mount Carmel in township 38, range 24; the same trail passes near Mount Carmel continuing easterly along a trail passing north of and not far from Deadmoose lake. From here we left the main trail and went northeasterly, passing the south end of Lake Lenore and continued in the same direction to the southerly boundary of the herein described township. Most of the way from Saskatoon was over a fairly good road. From the southerly boundary of this township, roads had to be made by clearing, brushing the muskegs and marshes and bridging the streams. The township is wet, largely muskeg and marsh and only suitable for ranching in dry seasons. The surface is covered with poplar and willow scrub, and in the drier portions poplar timber large enough for firewood and the walls of log shanties is found. These places are distributed all over where ground is dry enough. Hay marshes are abundant. The water is generally fresh and suitable for domestic use and would be found everywhere unless in very dry seasons. The streams are not large nor flowing swiftly and are not likely to flood the land to any great extent; the land is flooded chiefly because of its flatness. Waterpowers do not exist. The climate is similar to other parts of the country in the same latitude. Fuel of poplar is plentiful everywhere. No coal or lignite was seen and no stone quarries; no economic minerals were found. Bears and ducks are plentiful.—*G. B. Abrey, D.L.S., 1903.*

Township 42.—We reached this district by the Canadian Pacific Railway to Regina and by the Prince Albert branch of that railway to Saskatoon. From the latter place I took wagons, crossed the Saskatchewan and proceeded easterly along a trail intersecting the second meridian at the boundary between townships 37 and 38. I continued thence along a trail easterly, subdividing townships as I went, completing the survey of prairie townships at a camp on Mount Carmel in township 38, range 24. From Mount Carmel I took a trail passing near the camp and continued more or less easterly, passing north of and near Deadmoose lake. I then left the main trail and went northeasterly passing near the southern end of Lake Lenore. Continuing around the eastern side I reached the southern boundary of township 41, range 20. Over most of this distance the roads were fairly good. Through township 41, range 20 roads had to be constructed by clearing the way, bridging the creeks and brushing the marshes and muskegs. Near the south of this township the land became drier, and an old trail was found running northerly through the centre of the township. A better way to get to this section is from the north from Flett's Springs. The surface soil is black loam of good depth, with generally a clay subsoil. There is a very large proportion of muskeg of no use, under existing conditions of climate. Stony ridges in-

tervene between the muskegs. Ranching might be carried on, though the muskegs yield no grass and are impassable. Except on the muskegs the whole township is covered with timber and scrub. The timber and scrub is general, patches of each occurring, but little large timber was found. The timber is composed of poplar and balm of Gilead. The scrub is of the same kinds, and willows. These latter cover also the more solid portions of muskegs. Not many hay marshes were found. Water is found in the muskegs, lakes and marshes and would be permanent in the lakes and muskegs. It is suitable for domestic uses. There are no streams and the land is not liable to more flooding than we found. There are no water-powers. The climate is as usual in this country and latitude. I saw no special indications of summer frosts. Fuel is poplar and is plentiful everywhere. Coal or lignite was not seen. No stone quarries or minerals of economic value were seen. Bears are numerous. Ducks are found on the waters.—*G. B. Abrey, D.L.S., 1903.*

Township 43.—I made this survey with others lying southerly of it and proceeded to the ground from Toronto by way of Saskatoon by railway, and thence by trail across the country. Very few would probably come by that route. An easy way to get in is by trail from Flett's Springs, on the Melfort and Prince Albert trail. The part of the township adjoining and other townships to the north being already settled, and roads made, gives access from that direction. Some portions of this township will make desirable farming lands. The whole is suitable for ranching. The surface is rolling and surface soil is black loam of good depth underlaid by clay. There is some prairie land, some with good sized timber growing, and more covered with scrub. The prairie is in small patches on the higher ground in the southeastern part; the timber and scrub are generally distributed. Some of the poplar is large enough for settlers' log houses. All timber is either poplar or balm of Gilead. The marsh lands occur all over and yield grasses from which hay can be made, but little pea vine was seen. Water is all fresh; a small creek crosses the township. Two lakes were surveyed. The creek and lakes would appear to be permanent. The other wet places might dry up in dry seasons. I would not expect much flooding except from excessive precipitation. There are no water-powers nor indications of summer frosts. Poplar wood for fuel occurs all over, but no coal or lignite was seen. There are no stone quarries nor were any economic minerals found. Bears are common and ducks are numerous. A few chickens were seen on the prairie ridges, but the country is too low and flat for game requiring high ground.—*G. B. Abrey, D.L.S., 1903.*

Range 21.

Township 25.—This township is very hilly and uneven; some of the hills are very high, and covered with small bluffs of poplar of small size, there seldom being a tree 6 inches in diameter. There is no timber of any commercial value. Some might be used for small buildings. The soil is very hard and is unfit for agricultural purposes, except in very few cases. Last mountain is chiefly included in this township—only a small part in township 24—and scarcely any in township 26 to the north. There are no hay marshes or meadows, but among the bluffs fair pasturage could be got, and could be used to good advantage for ranching purposes, as good shelter can be got in most cases. There are a great many ponds, which are generally deep, and the water is good and comparatively free from alkali. None of the land would at any time be liable to flooding. There are no streams nor water-power on any part of the township. The climate would be comparatively free from frosts as it is so dry. There are no stone quarries, but in places there are a great many loose stones that could be used for building purposes. No minerals were seen. Fuel can be had without much trouble, as there is a great deal of fallen timber in places. Game is scarce; we did not see any

deer, only a few chickens, but there were a great many ducks on the lakes and ponds. This township could be used to good advantage as a large ranch, as there is fair pasturage and good water; the trouble would be in there not being any hay. The cattle would have to be wintered elsewhere. There is a good settlement on township 24, where the settlers are generally prosperous. They are chiefly Germans, who came out direct from Europe, and are very thrifty and industrious. The crops this year are very good, and a good sample of grain. There is a post office, 'Strassburg,' in township 24, range 21, about section 29, which is a great convenience for the settlers.—*James Warren, D.L.S., 1903.*

Township 26.—The soil in this township is of a very fair quality, the greater part of which would be suitable for growing grain and roots. The surface is open and generally level prairie. Last mountain just touches the southerly part of the township, and not the northern part as shown on the published maps. There is no timber of any kind in the township. There are a few very small hay marshes; not enough to be of much value. There are a few ponds of good fresh water, some of which are deep, and would hold water all season. On sections 1 and 12 there is a long narrow slough or pond which is deep and will always have water in it. There are no streams running in the township and no water-power. The climatic indications are good, and there would not be summer frosts. There is no fuel on the township, but a fair supply can be got on township 25, where there is a limited supply. There are no stones on any part of the township. Game is scarce, there being only a few ducks on the ponds or marshes. The township as a whole may be rated as a first-class one, good for settlement. There is a survey line for a railway on township 27, just to the north, which if built would be a good outlet.—*James Warren, D.L.S., 1903.*

Township 29.—This township is situated about 90 miles from Qu'Appelle station on the Canadian Pacific Railway. The road from the station to Prince Albert is the best route to reach it, as it is only 8 miles west of this road, which is a very good one, except where it goes through the salt plains for a distance of about 7 miles. This part can be avoided by following from the 'Poor Man' reserve an old cart trail that goes straight west, and which is very good. The soil is good for farming, being from 5 to 12 inches of black loam with gray clay as subsoil. It is gently rolling, with a few hills. There is no good hay land, and no good water except the rainfall which gathered in about a dozen small marshes. In a dry season there would be no good water. There is no water power. The climate is good; no summer frosts. There is no timber whatever, and the nearest place where fuel can be had is at Touchwood. We saw no sign of coal or lignite, no stone and no minerals. Game is plentiful; deer, antelope, badgers, fox, wolf, duck, prairie chicken and snipe of all kinds are common.—*C. E. Lemoine, D.L.S., 1903.*

Township 30.—This township is situated about 90 miles from Qu'Appelle station, Canadian Pacific Railway, by the Prince Albert and Qu'Appelle road, which is the best route to reach it. It is only 3 miles west of this road, which is a very good one, except where it goes through the salt plains for a distance of about 7 miles. The soil is good, being composed of black loam from 5 to 12 inches deep, with yellow clay as subsoil; in a very few places the subsoil is sand and gravel. It is a broken country, but there are a few level sections in the centre. Sections 1, 2, 11, 12 and the south half of 14 and 13 are useless, being low swampy land with a few sandy and rocky hills. A saline creek passes through this portion. The rest of the township though broken is good for general farming and stock-raising. It is open prairie, with no large marshes. There is no good water, except the rain water which gathers in about a dozen small marshes. In a dry season there would be no good water. Climate is good; no summer frosts were noted. There is no timber whatever, and the nearest place where fuel can be had is at Touchwood. There is no sign of coal, lignite, stone or minerals. Game is plentiful; deer, antelope, badgers, fox, wolf, duck, prairie chicken and snipe of all kinds are common.—*C. E. Lemoine, D.L.S., 1903.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN—RANGE 21.

Township 31.—This township is situated about 90 miles from Qu'Appelle station by the Prince Albert and Qu'Appelle road, which is the best route to reach it. It is only three miles west of this road, which is a very good one, except where it goes through the salt plains for a distance of about seven miles. The soil is poor, more especially in the centre where there are some large marshes and saline ponds. The only sections good for farming are the following: 31, 32, 33, 19, 30, 29, 3, 2, 1, 10, 11, 12, 13, 14, the rest may be used for stock-raising. The township is a bare prairie with about two square miles of good hay land. There is no good water except the rain water which gathers in about a dozen small marshes. In dry seasons there would be no good water at all. Climate is good with no summer frosts. There is no timber whatever, and the nearest place where fuel can be obtained is Touchwood. There is no sign of coal or lignite and no stone or minerals. Game is plentiful; deer, antelope, badgers, foxes, wolves, ducks, prairie chicken and snipe of all kinds are found.—*C. E. Lemoine, D.L.S., 1903.*

Township 32.—This township is situated about half way between the town of Prince Albert and Qu'Appelle station on the Canadian Pacific Railway. The best way to reach it is by the road to Prince Albert which is very good in this dry season, but not so good in a wet season. The soil is 5 to 8 inches of black loam with white clay as subsoil; but in some places the subsoil is sand and gravel. It is good for farming and stock-raising. The greater part of it is prairie with some bluffs of poplar from 2 to 5 inches in diameter and some willows are found in the centre. The belt covered by this wood is about two miles wide running from east to west. Water is very scarce. There are no large marshes, but a few small ponds formed by the rain water. There are two large swamps but the water in them is alkaline. The climate is good, no summer frost being noted. The only fuel is the poplar and willows which grow in the centre of the township. There is no stone nor minerals. The game is plentiful; deer, antelope, badgers, ducks, cranes, snipe of all kinds and geese are found.—*C. E. Lemoine, D.L.S., 1903.*

Township 33.—This township is situated about half way between the town of Prince Albert and Qu'Appelle station on the Canadian Pacific Railway. The best road to reach it is the Qu'Appelle and Prince Albert trail, which is very good in this dry season, but not so good in a wet season. The alluvial soil is 7 to 12 inches of black loam with white clay as subsoil. The most part is prairie with small bluffs of young poplar and willows. The strip of ground covered by these bluffs is about two miles wide and runs at an angle of 45 degrees from the southwest to the northeast corner; there are also a few bluffs of poplar, willows and shrubs on the north part of sections 31, 32, 33, 34 and 35. This township is well supplied with soft water by a large coulee that passes through the centre, and some large hay marshes 2 to 3 feet deep, where the water is always cool and fresh. In the south part there are also four or five ponds from 4 to 5½ feet deep with good water. There is no water-power. The climate is good, no summer frosts were observed. The only fuel is the small poplar and willows. There is no sign of coal or lignite, no stone and no indication of minerals. The game is plentiful and consists of deer, antelope, badgers, ducks, cranes, snipe of all kinds and geese.—*C. E. Lemoine, D.L.S., 1903.*

Township 34.—This township can be reached by the Prince Albert trail following the telegraph line. The soil is black loam with sandy clay and clay subsoil, suitable for mixed farming and grazing. The surface is covered with a thick growth of poplar and willows with prairie spots and is rolling. The only timber consists of poplar from 2 to 6 inches in diameter and willows occurring in bluffs. There are a great number of small sloughs where hay could be cut in a dry season. There is no permanent supply of good water; the numerous small ponds and lakes are strongly alkaline. There is plenty of fresh water in the sloughs but in a dry season there would be none. There are no water-powers. Last summer was cold and wet, but there were no summer frosts.

The only fuel is poplar and willows. No coal nor lignite, stone quarries or minerals were found. Prairie chickens, ducks and rabbits are common.—*J. A. Côté, D.L.S., 1903.*

Township 35.—This township can be reached by the Prince Albert trail, following the telegraph line. The soil is black loam, with sandy and clay subsoil, suitable for mixed farming. The south half is good for farming and the north half for grazing. The surface is covered with a thick growth of poplar and willows, with prairie spots, and is rolling. The only timber consists of poplar 2 to 6 inches in diameter and willows occurring in bluffs. There are a great number of sloughs where hay could be cut in dry seasons. There is no permanent supply of good water in the township. The numerous small ponds are alkaline. There is plenty of fresh water in the sloughs, but in a dry season there would be no fresh water. There are no streams in this township and no water-power. The season was cold and wet, but there were no summer frosts. The only fuel is poplar and willow. No coal nor lignite, stone quarries or minerals were discovered. Prairie chickens, ducks and rabbits are found.—*J. A. Coté, D.L.S., 1903.*

Township 36.—This township can be reached by the Prince Albert trail, following the telegraph line. The soil is black loam, with sandy and clay subsoil, suitable for mixed farming and grazing. The surface is covered with a thick growth of poplar and willows, with prairie spots, and is rolling. The only timber consists of poplar 2 to 8 inches in diameter, and willows occurring in bluffs. There are a great number of sloughs where hay could be cut in dry seasons. There is no permanent supply of good water in the township; the numerous small ponds are alkaline. There is plenty of fresh water in the sloughs, but in dry seasons there would be no fresh water. There are no streams in this township and no water-powers. Last summer was cold and wet, but no summer frosts were experienced. The only fuel is poplar and willow. No coal or lignite, stone quarries or minerals were observed. Prairie chickens, ducks, and rabbits are common.—*J. A. Coté, D.L.S., 1903.*

Township 41.—The means of getting into this township is by rail from Flett's Springs. It is in good condition and is used by settlers in townships to the north and to the south. The soil is black loam from 2 to 18 inches in depth, with a clay loam or other loam subsoil. In different parts the clay comes to the surface. The soil is very well fitted for agriculture, the most of it being first or second-class. However, much of the land is low and in the rainy seasons becomes wet, and not being much above the level of Lake Lenore, considerable portions would be useless for farming. The surface is mostly timbered and scrubby. In sections 29, 30 and 28, there are a few small tracts of prairie land, the extent being about 200 acres. Along the east shore of Lake Lenore there is considerable prairie land. This occurs in sections 2, 11, 23, 34 and 35. The timber (which is poplar) and brush exist in the proportion of about 2 to 1. The timber is scattered although there are some compact areas in the northwestern part. The brush consists principally of heavy willows, hazel, cherry and poplar. Fallen timber is found throughout more or less. Hay marshes and meadows extend at intervals all along Lake Lenore. In sections 22, 23 and 14 there is a tract of marsh on which there is a luxuriant growth of hay. On this marsh several stacks of hay were found which settlers from townships in the vicinity had put up. The extent of this marsh is about 350 acres. Hay of good quality is also found along the lake on sections 2, 11, 27, 34, 35, 26, 33, 28, 29 and 30. The sections bordering on Lake Lenore have the best water supply. The water in this lake is fresh and suitable for all uses. The water in the remaining lakes and ponds is fresh, but some of the sections have very little. A creek of from 4 to 10 feet in width and 2½ feet deep flows through sections 31 and 30, emptying into Lake Lenore. The current is about 2 miles per hour, and the water is clear and cool the year round. This stream affords some of the best water in the district. Another creek somewhat smaller, apparently flows out

of the south end of Lake Norona, in section 25, through sections 26 and 36, and empties into Lake Lenore. When survey was made this creek was frozen to the bottom. Much of the water will dry up in a dry season. Much of the land in the vicinity of Lake Lenore, both on the east and west sides, is liable to flood in the wet seasons. There is no available water-power. Fuel exists all through in the form of poplar and dry windfall. There are no stone quarries nor minerals of economic value. No large game was seen in this township, but jumping and black-tailed deer and an occasional black bear are known to exist. Of the other fur-bearing animals, the red fox, muskrat and rabbits are common, also the coyote. Mink, weasel, lynx and badger are not so common, but a few are found. Wild ducks of many varieties and ruffed grouse are found in large numbers. Fish abound in Lake Lenore. For description of climate see that given for township 42, range 21, west of the second meridian.—*George Ross, D.L.S., 1903.*

Township 42.—The means of getting into the township is by a trail in the eastern part, leading from Flett's Springs. The trail is in good condition and is in use the year round. At present it is the only means of entering the township. The soil is mixed throughout. Black loam and black sand two to eighteen inches deep with a subsoil of clay or some loam form the soil in many parts. In some sections, clay or light loam forms the soil. The soil is very well adapted for general farming, in most parts being rated as first or second class. The surface is timbered and scrubby with the exception of a stretch of prairie in sections 25, 26, 35 and 36. Some of this land is overgrown with low scrub which could be easily removed in one season. Through these above mentioned sections, there is about six hundred acres of prairie land, the greater part being in the west halves of sections 25 and 36. In sections 2 and 3 along Lake Lenore there is a small area of prairie between the marsh and the brush. The remainder of the township setting aside lakes, ponds and marshes, is timbered and scrubby in about equal proportions. The brush and scrub occur chiefly through the central part of the township and consist of cherry, willow, hazel and young poplar. Much fallen timber is scattered throughout. The timber consists of aspen, and balsam poplar. It averages from three to ten inches in diameter. In the west part of the township, it grows quite thickly, but in the eastern part is more scattered. There are many hay marshes and marsh ponds through the western half. All, or nearly all are deep and in a wet season cannot be utilized. However, in a dry season, when the water would be low, much hay could be taken out. Marshes occur in the western halves of sections 4, 6, 8, 9, 16, 17, 18, 20, 21, 22, 29, 30, 31, 32 and 33. The quality of the hay is good and that which could be used in a dry season would cover from two to fifteen acres on an average in each marsh. In the eastern part of the township at the north of Lake Lenore, there is a hay marsh in parts of sections 23, 24, 25 and 26. As in the other marshes, the most of this hay could only be gotten out in a dry season. In the south part of the eastern half, along Lake Lenore, more hay grows. In sections 2 and 3 a strip of hay marsh is found on either side of the lake. The area of these two strips is about one hundred acres. The water supply exists in the form of ponds, lakes and creeks. The water throughout is fresh and of very good quality. There are several small creeks, averaging from two to ten feet in width. These flow through sections 30, 19, 32, 34, 35, 26, 27, 22, 15, 10, 11 and 6. The depth averages a foot, and the current about a mile and a half per hour. The volume of water is not great. The water supply in a dry season would be limited to the large lakes. There are no available water powers in the township. The climate is similar to that in the surrounding prairie townships in this district, where a large amount of grain, such as wheat and oats is grown; and vegetables such as potatoes, beans and onions are cultivated with great success. Last summer there were some summer frosts, but no resulting injury to vegetation was noticed and tender vegetables such as beans, grown in the neighbouring townships suffered no hurt. Last

summer the rainfall was excessive; consequently there was more surface moisture than usual, so when the land is cleared up and drained, no injury need be feared from summer frosts. Ice formed on the smaller ponds on November 8, and remained during the winter. By November 15 the ice on the ponds and lakes was quite solid. There are no stone quarries nor minerals of economic value in the township. Fuel exists in large quantities throughout, in the form of poplar wood and dry poplar windfall. The larger game is scarce, there being a few jumping and black tail deer and an occasional black bear. Foxes, muskrats, skunks and rabbits exist in considerable numbers. Mink, weasel, badger and coyote are found but are scarce. The feathered tribe consists of many varieties of wild duck. These birds inhabit the district in large numbers. Ruffed grouse are numerous. Fish are found in the lakes and must exist in large numbers for the creeks were all full of minnows.—*George Ross, D.L.S., 1903.*

Township 43.—This township was surveyed after completing that of others farther south The route for reaching this is from Flett's Springs from the Prince Albert and Melfort trail. Trails are made up through the settlements close to the northern boundary of this township. The township can accommodate a few farmers, and more by clearing the land. There are some high hills. It would make ranching land, and is suited for mixed farming. The surface soil is black loam over a clay subsoil. Some of the ridges are stony and the soil thinner and lighter. There is very little prairie, most of the surface is covered with timber and scrub. Some windfall occurs. The timber is mixed generally with the scrub, and is composed of poplar and balm of Gilead. Sufficient of suitable size may be had for settlers' log houses. Marshes and muskegs are frequent, though not so numerous as found in townships to the southwest. The low lands yield grasses that may be made into hay. The hay marshes are not of great extent. Numerous small creeks are met with. One lake was surveyed. All water is fresh. The water I would expect to be permanent. There are no water-powers. The land is not liable to be much flooded except from precipitation locally. There are no special indications of summer frosts. Poplar wood for fuel may be had everywhere. No coal or lignite was found. There are no stone quarries, nor were economic minerals seen. Bears are common. Ducks are found in the wet places; some partridges are found in the woods.—*G. B. Abrey, D.L.S., 1903.*

Range 22.

Township 25.—The soil in this township is of good quality for the greater part, and is well adapted for grain growing, also for roots. The surface is all open prairie, and part of the northeast is gently rolling; the remainder is generally level. There is no timber of any kind in the township, it being all open prairie. The east boundary is hilly. In the northeast corner of the township there is a large level marsh or pond, which from the surrounding banks appears to have been a large lake at one time, but now has only about 6 inches of water, and is covered with reeds and grass. There are no hay meadows on the township; only a few ponds have long grass. There is no water in the township, only a few ponds which are fresh. There are no streams of any kind, nor any water-power. The climate appears to be good, and judging from the surroundings would not be liable to summer frosts. There is no fuel in the township, but a fair supply can be had on township 25, range 21, adjoining. There is no appearance of coal or lignite in any part of the township. There are no minerals to be seen in the township. Game is scarce. We saw only ducks on the marsh in the northeast part of section 36. This township is fairly well adapted for settling, as the soil is generally of good quality, and is favourably situated to some of the surrounding settlements.—*James Warren, D.L.S., 1903.*

Township 26.—This township is of fair quality; the greater part would be suitable for grain-growing or for roots, as the soil is generally good. In section 1 there is a

large marsh or what was formerly the bed of a large lake, but now has only about 6 inches of water and is covered with grass and weeds. The old shores are well defined by a steep bank about 6 feet high. The surface is generally level; part of the north is somewhat rolling, but could not be called hilly. There is no timber of any kind on the township. Hay marshes are scarce and only small. There are a few ponds of water, which are generally fresh and free from alkali. The supply of water is generally limited. There are no streams, and consequently no water-power of any kind. The climatic indications are good, and it would be comparatively free from summer frosts. There is no fuel, but it could be got from township 25, range 21, on which there is a fair supply. There is no stone or minerals of any kind in the township, nor is there any appearance of coal. Game is scarce; only a few ducks were seen on the ponds or marshes. Taking the township as a whole, the land is of a fair quality, and would be available for settlement.—*James Warren, D.L.S., 1903.*

Township 29.—This township is all prairie; there is no wood at all, except small clumps of willow and a very few scattered clumps of fire-killed poplar toward the north. The surface in the southerly two-thirds of the township is flat or gently rolling, with flat ridges and extensive flats. There are a few sloughs, without hay. The two tiers of sections at the north end have a gently rolling surface, and the land is generally dry and most of it first class. The south two-thirds on the other hand is only third-class. It has extensive flats of soft clay (alkaline). It is seldom of any use for farming purposes. There are a few small scattered boulders in places. The township as a whole must be described as a poor one. The soil varies from a heavy clay on the flats to loam or sandy loam on the higher places. Access to this township is at present from Davidson on the Regina and Prince Albert Railway, by a trail which passes around the north end of Last Mountain lake, and continues eastward to the Touchwood Hills country. There are no settlers of any kind in the township. Colt lake is a sheet of water on section 19, the water being somewhat brackish. It has mostly high banks.—*John McAree, D.T.S., 1903.*

Township 30.—This township is all prairie; except for three or four small and unimportant bluffs of willow and poplar, and in the northerly part there is no timber at all. The surface is gently rolling or else level and the soil clay and clay loam to sandy loam. A good deal of the land is first class. There are a few small sloughs but no hay sloughs of any importance. The water in this is generally fairly good and free from alkali. There are a few small boulders scattered through the northern part of the township, which has also a few small hills and knolls. There are no settlers or other inhabitants. The route from the township is westward to the southerly part of township 30, range 22, and thence southwesterly to the trail going to Davidson on the Regina and Prince Albert Railway. We saw a few prairie chicken and antelope and in the larger sloughs great numbers of ducks, jack-rabbits, sandhill cranes, wild geese, pelican, woodcock, snipe, plover, meadow larks, &c. The grass on the uplands is short and crisp.—*John McAree, D.T.S., 1903.*

Township 31.—This township is entirely prairie; there is no timber except two or three small clumps of young poplar and willow about the centre of the township. The surface is level or else very gently rolling. Sloughs occur here and there; some of them on the west side of the township may be called hay sloughs. Besides the sloughs there are other flat places on nearly every section which in very wet years might come under the term sloughs, but which in years of ordinary rainfall would be good arable land. The soil is mostly clay loam, loam and sandy loam around the bluffs; at the centre of the township is a sandy tract. The soil is generally of good depth—8 to 18 inches—with clay, clay and gravel or sandy subsoil. Small boulders occur throughout the township, but very thinly scattered as a rule. A tract about 20 chains in width running southwesterly from section 34 across the township, contains a series of stony, gravelly hills, up to about 30 feet in height. The ridges are not continuous, but are

interrupted and the tops of them are mostly stony and gravelly. There is no running stream in the township; Grassy creek passes outside the southeast corner, but in the sloughs the water is all fairly good. No doubt good water could be found by digging a few feet.—*John McAree, D.T.S., 1903.*

Township 32.—The northwest corner of the township consisting of sections 5, 6, 7, 8, 18 is clay loam. The eastern part of the township consisting of the east tier of sections and sections 2, 3, 10, 11, 14, 15, 23, 26 is clay loam with a few stones. The remainder of the township is mostly black sandy loam. The surface is mostly gently rolling prairie. The north third of the township is flat. Small clumps of willow occur along the line of the east boundary of sections 20, 29, 32, also in sections 34 and 35. The flat land produces hay. The northern part of the township appears to be wet judging from a recent storm. A few boulders occur scattered through the soil in sections 1, 3, 5 and 9.—*John McAree, D.T.S., 1903.*

Township 33.—This township is open prairie excepting along the northerly two tiers of sections crossing the range where there are numerous bluffs of poplar and willow. This poplar will be useful as fuel, but scarcely any is of sufficient size for building purposes. Across the middle of the township a belt of rather low-lying land occurs, which would be well adapted for hay; there are a number of these hay areas. The southerly part of the township is inclined to be sandy in places; as a whole the soil may be described as sandy to sandy loam. Some of the knolls are gravelly. Wolverine creek crosses the township and there are some sloughs and hay sloughs in its vicinity. There is some fine hay land along the north shore of Owl lake. The water in the sloughs is fairly good. At the time of our survey Wolverine creek could be crossed almost anywhere by a team. There is some fine land along the east side of the township. Some of the sections among the poplar bluffs would be good sites for small ranches, hay and fuel being fairly plentiful and the soil suitable. As a whole, the township would be suitable for mixed farming.—*John McAree, D.T.S., 1903.*

Township 34.—This township can be reached by the trail from Prince Albert, which crosses it from north to southeast. The soil is black loam with sandy clay, clay, sand and gravel subsoil, suitable for mixed farming and grazing. The surface of the east half is covered with a thick growth of poplar and willows, with prairie spots; the west half is rolling prairie. The only timber consists of poplar 2 to 6 inches in diameter. There are a great number of sloughs where hay could be cut in dry seasons. There is no permanent supply of good water, the numerous small ponds are alkaline; there is plenty of fresh water in the sloughs, but in a dry season there would be none. There is no water-power. The season was cold and wet, but there were no summer frosts. The only fuel is poplar and willow. No coal nor lignite, stone quarries or minerals were observed. Parire chickens, ducks and rabbits are found.—*J. A. Côté, D.L.S., 1903.*

Township 35.—This township can be reached by the trail from Prince Albert, which crosses the township from north to southeast. The soil is black loam with sand and gravel, sandy clay and clay subsoil, suitable for mixed farming and grazing. The surface is covered with a thick growth of poplar and willows with prairie spots, and except in the northwest is rolling. The only timber consists of poplar 2 to 6 inches in diameter. There are a great number of sloughs where hay could be cut in dry seasons. There is no permanent supply of good water in the township; the numerous small ponds are alkaline. There is plenty of fresh water in the sloughs but in dry seasonos there would be none. There are no streams in the township and no water-power. The season was cold and wet, but no summer frosts occurred. The only fuel is poplar and willow. No coal nor lignite, stone quarries or minerals were found. Prairie chickens, ducks and rabbits are common.—*J. A. Côté, D.L.S., 1903.*

Township 36.—This township can be reached by the Prince Albert trail, which crosses the southwest corner. The soil is black loam, with clay, sand and gravel sub-

soil, suitable for mixed farming and grazing. The surface is covered with a thick growth of poplar and willows with prairie spots and is rolling. The only timber consists of poplar 2 inches to 5 inches in diameter and willow occurring in bluffs. There are a great number of sloughs where hay could be cut in dry seasons. There is a permanent supply of good water in sections 30, 31, 32, 33 and 34. There is plenty of fresh water in sloughs, but in dry seasons there would be none. There are no streams in this township and no water-power. The season was cold and wet, but no summer frosts occurred. The only fuel is poplar and willow. No coal or lignite, stone quarries or minerals were discovered in the township. Prairie chickens, ducks and rabbits are found.—*J. A. Côté, D.L.S., 1903.*

Township 37.—This is a first-class township. When I made the survey in September last there were some 30 settlers. All of these were Germans from the United States, with the exception of one family who were Poles. These settlers had arrived during last summer and were all well supplied with stock and farm implements. All those who had arrived sufficiently early in the season had some crop, also potatoes, barley, oats and flax. I neved looked upon a finer field of oats than I did there, in the third week of September. It was almost ripe and had been sown on May 21. The other crops were equally good. The land is practically level, with some small sloughs. There is sufficient wood in scattered bluffs to furnish firewood for many years to come, provided they are preserved from forest fires. It is all small poplar and willow. The soil is a rich clay. There is one stream of good water emptying into Humboldt lake. This is a fine large sheet of water, but it is very bitter. It is a great resort for ducks and geese. The larger part of the lake is in township 36, range 22. All the men had a considerable amount of breaking done ready for crop the coming season. Nearly all the sloughs contained good water, and the settlers all had excellent wells of moderate depth. The flourishing condition of the crops bore ample testimony to the favourable climate. The people were most enthusiastic over the country. Their nearest station is Rosthern, to which there is a good wagon trail. The Canadian Northern Railway is surveyed across the township, lying for the most part in the second tier of sections from the south boundary, but as the survey may not be permanent, I took no note of it. Prairie chickens, ducks, muskrats and badgers constitute the only game. There are no quarries nor minerals.—*James Dickson, D.L.S., 1903.*

Township 41.—The best route for reaching this township is as follows:—Start from Duck lake and go easterly to Batoche, thence along the Batoche branch of the Qu'Appelle and Prince Albert trail to the main trail from Qu'Appelle to Prince Albert, thence northeasterly and south of Wakaw lake by an unsurveyed trail to the point in township 43, range 25, where this trail meets an old trail from Prince Albert to Basin lake, thence southeasterly passing south of Shannon lake, south of Basin lake and along the west side of Middle lake, entering the township in section 6. This route is in good condition at present. The soil is chiefly black loam from 2 inches to 18 inches in depth, with either a sandy loam, loam or clay subsoil. Much of it in the south part of the township is first-class and would make good farming land when cleared of brush and timber. In some places clay and different loams form the surface soil. The surface is mostly timbered and scrubby. In the south part are small tracts of prairie land from 2 to 15 acres in area. These tracts occur in sections 5, 6, 7 and 8. In sections 32 and 33 there are also small tracts of prairie. In section 25 (the eastern half) there is a tract of prairie with an area of about 100 acres. There is also a strip of prairie land along the north shore of Lake Lenore in sections 26 and 27. The remaining part of the township where not broken by ponds or hay marsh is covered with brush and timber. About 20 per cent of the township is covered with poplar timber from 2 to 18 inches in diameter. Timber is found on sections 3, 4, 5, 8, 9, 10, 11, 13, 14, 15, 16, 17, 21, 22, 23, 25, 26, 33, 34, 35, 36 and on 18 on Gooseberry island. There is much fallen timber all through which is partly burned. Hay of very good quality may be

had in this township. In the south part in sections 5 and 6 there are about 500 acres of hay land. In the summer and fall this land is fairly dry and the hay may be easily gotten at. Another large tract of hay and grass marsh and meadow extends from the western extension of Lake Lenore, through sections 28, 29, 20 and 19, running into Middle Lake in section 18. The extent of this tract is about equal to one section. This marsh is dry enough in the summer for hay to be cut. Hay of an inferior quality may be had along the east shore of Middle lake and along the north and south shores of Lake Lenore. The water supply is abundant, there being many large ponds through the township. The water in Middle lake is bitter and unfit for household use. That in Lake Lenore is fresh and well fit for use. In the south there are two creeks flowing into Middle lake. One flowing through section 6, is about 3 feet wide and 1 foot deep, the current being about 1 mile per hour. Another creek from 3 to 5 feet wide and averaging 1½ feet in depth flows through sections 5, 6 and 7 into Middle lake. These two creeks contain good water. The other creeks in the township are described in the field notes. All of the creeks will be dry during a dry season. The land is not liable to floods. There are no available water-powers. There are no stone quarries nor minerals of economic value. Wood is the only available fuel and may be had all through in the form of live and dry poplar. The larger game consists of jumping and black-tailed deer. The smaller game is numerous, consisting of duck, grouse, partridge, rabbits, hare and cotton-tails. Muskrats abound in the ponds. Other fur-bearing animals, fox, mink, weasel and coyotes are found in small numbers. Fish are found in Middle and Lenore lakes. For description of climate see that given for township 42, range 21, west of the second meridian.—*George Ross, D.L.S., 1903.*

Township 42.—There is at present no regular trail leading into this township, although an old trail partly obliterated enters the township in the north part in section 31. Where this trail crossed the boundary line could not be ascertained. It leads from Flett's Springs or Kinistino. The soil is mostly clay, clay loaom or stony light loams, and much is unfitted for farming. A great drawback to this township for farming is that it is broken and hilly, and some parts are low and swampy. However, there is some first-class land, as shown by the field notes. The surface of the township is mostly scrubby. About eight per cent is covered with poplar timber of both the aspen and balsam varieties. Poplar timber grows on sections 1, 2, 3, 4, 8, 9, 10, 12, 13, 15, 16, 17, 24, 25, 33, 34 and 36 in greater or less quantities. The timber, which is rather scattered, averages six inches in diameter. The township was burnt over some years ago and has since become overgrown with much young poplar from one to three inches in diameter. Poplar, willow, cherry and hazel brush, with much fallen timber, cover the entire surface. There is very little hay land. Small marshes occur in sections 22, 28, 31, 32 and 36. The hay in these can only be gotten out in a dry season. Along a creek flowing out of Little Moose lake through sections 8, 7 and 6 there is a strip of land covered with hay and short grass. The strip is from two to twenty chains in width. In the southeast quarter of section 5 there is a large grass marsh containing grass of very fair quality. There is much water throughout in the form of ponds or lakes. All of it is fresh. The creeks, which are small, contain good water. Their width varies from three to five feet, and the depth averages about a foot. One creek in the north has its source in a shallow marshy lake in sections 29 and 32. It flows through parts of sections 29, 30 and 19. After crossing the west boundary of section 19 it evidently flows into Basin lake. A creek having its source in Little Moose lake in section 8 flows through sections 8, 7, 5 and 6 and crosses the south boundary. This creek widens out into ponds in many places. The current is about two miles per hour, and the volume of water is quite large in rainy seasons. Two other small creeks flowing into Little Moose lake flow through sections 15 and 16, and enter the lake in the northeast quarter of section 9. There would be little or no water in these creeks in a

dry season. Fuel in the form of poplar wood and dry poplar windfall exists in large quantities. The windfall extends more or less all through. There are no minerals of economic value, nor are there any stone quarries. The large game, which is not very plentiful, consists of jumping and black-tailed deer. The small game consists of rabbits, hare, duck, partridge, a few mink, muskrats, fox and coyotes. An occasional lynx is found. We did not discover any fish in the lakes, although some may exist. For description of climate, see that given for township 42, range 21, west of the second meridian.—*George Ross, D.L.S., 1903.*

Township 43.—After completing certain other surveys, I proceeded to this township by way of Flett's Springs, a settlement on the Prince Albert and Melfort road. A trail branches from the main road, going southerly, passing through the centre of the township, and is reasonably well cut out and in fair condition. This township has a fair depth of black loam surface soil, except where broken by hills, on the slopes of which the soil has been carried away by natural causes. A deep wide ravine extends through the township from north to south, in which a small creek flows. The ravine is about a mile in width and 250 feet in depth as measured with a barometer. Portions of the slopes of the banks of the main ravine are very rugged and broken by intersecting ravines. The bottom of the ravine is rough and broken by hills and muskegs. On the west side of the ravine extending to the western boundary the township is wet and broken by marshes and muskegs. Some portions might be utilized in dry seasons for ranching, and of course it might all be drained into the valleys and become farming land. No prairie is seen. Scrub and timber with windfalls cover the whole dry portion. The timber is poplar and balm of Gilead. Hay may be made in the marshes when not too wet; the quantity would not be great. Water is plentiful in the streams and marshes. It would be permanent in the creeks; it is not alkaline. The streams are all small, and not sufficient for water-power. The land would not be flooded to any great extent. There were no special indications of summer frosts. Poplar wood for fuel can be had all over the township. No coal or lignite was seen. There are no stone quarries showing, and no economic minerals were seen. Bears are common. A few ducks were seen; some partridges were found on the banks of the ravine.—*G. B. Abrey, D.L.S., 1903.*

Range 23.

Township 29.—This township is entirely prairie, excepting a couple of small bluffs of willow and small poplar and an occasional willow bush. The township is quite destitute of timber. The surface in general is a flat prairie with a soft and dark clay soil. Towards the northwest and northeast quarters of the township the land is gently rolling. At the northwest corner the soil is sandy. On the ridges or more elevated tracts, the soil is clay to clay loam, whilst on the flat, it is clay and sometimes a soft pasty clay or what is called alkali. Most of the land would therefore be rated as third-class, and the rest second-class. Wolverine creek crosses the township and is joined by Saline creek from the northeast. There are no hay sloughs worth mentioning. From an agricultural point of view the township is a very good one. Access to the township at present is by a trail from Davidson on the Regina and Prince Albert Railway. This trail goes around the northwest of Last Mountain lake, and passes near the southwest corner of the township and then leads away to the Sandwood hill country. There are no settlers in the township.—*John McAree, D.T.S., 1903.*

Township 30.—This township is level or only very gently rolling throughout; it is all open prairie and quite destitute of timber of any kind, except an occasional willow grassy creek. A stream 10 links wide, 2 feet deep, with a current of one mile an hour winds through the southeast quarter of the township. Boulder lake, a fine sheet of good water comes in on the west side. There is also a long marshy lake in section

20, &c. Wolverine creek drains Boulder lake and is a fine stream. In section 31 and for a mile east from the lake along the north boundary, the boulders are very numerous. The soil on the higher parts varies from black loam to black sandy loam, or even to a more sandy soil, but on the flatter places it is loam or clay loam. There are very few hay sloughs but there are a few sloughs where the grass grows to be about 9 inches high, but it is seen to consist almost wholly of leaves. On the dry land the grass is quite short. The water in all this region is fairly good. This township would be good for summer ranching on account of the abundant water, and a large percentage of the area will be found to be suitable for general crops. There are no settlers in the township. Access to the township at present is by way of trail to Davidson on Regina and Prince Albert Railway.—*John McAree, D.T.S., 1903.*

Township 31.—This is a prairie township, there being no timber at all except a few small clumps of young poplar. The surface is level or gently rolling with flat places. These flats are not so wet as to be called sloughs, yet the grass growing in them is different from that on the higher ground and usually of a yellow tint. These flats would probably be too wet for general crop in a wet season. There are a few small sloughs but very few hay sloughs—a serious drawback to ranching in this township. Some of the sloughs appear to be virtually springs. The soil is mostly a black clay loam containing a considerable percentage of sand forming a light soil. On the higher ground this soil prevails but on the lower lands the soil contains more clay. The soil in the southwest quarter of the township is a dark or black clay, a clay loam, but in this quarter the boulders lie thickly on the ground. This stony tract takes in sections 6, 7 and 18 and the west halves of 5, 18 and 17. The remainder of the township is comparatively free from stones except on a few knolls in the southeast part. Wolverine creek crossing the westerly part of the township is a fine stream about 20 to 30 inches deep and 10 feet wide. There are some sloughs along its course. The township would be suitable for mixed farming rather than for wheat growing or ranching. Until another railway is built it will be tributary to Davisdon on the Canadian Pacific Railway. There are no settlers in the township.—*John McAree, D.T.S., 1903.*

Township 32.—This township is all open gently rolling or level prairie. There is a bluff of a few acres of small poplar, willow, &c., at the southwest corner, otherwise the township is destitute of timber. There are a few ridges with gravel and some stones, but outside these the land is nearly all first class. The soil is sandy loam, loam and clay loam, with clay subsoil. There are some good hay sloughs, also on the uplands. The township is well watered by the Wolverine creek which runs diagonally across the township. There is some good hay land along this stream. Altogether the township is a desirable one for ranching or for growing grain.—*John McAree, D.T.S., 1903.*

Township 33.—This township is open prairie, with the exception of a tract on the four sections around the northeast corner of section 11, where there are a few poplar bluffs with trees up to 6 inches; there are also a few small bluffs around the northeast corner of section 10. There are clumps of willow scrub scattered over the eastern and the southern portions of the township. The land is level or gently rolling, and there are very few sloughs. The soil is generally free from boulders, but on some of the low narrow short ridges there are beds of fine gravel, sometimes in the subsoil and sometimes at the surface. The soil is generally sandy and sandy loam, with a little clay loam. In the area of poplar and willow bluffs in the southeast quarter of the township the soil is decidedly sandy. This township will be adapted to mixed farming, except a few sandy areas which will probably remain unoccupied for some time after the more valuable sections have been taken up. The scarcity of hay land will forbid ranching to any great extent.—*John McAree, D.T.S., 1903.*

Township 34.—This township can be reached by the trail from Prince Albert, following the telegraph line. The soil is black loam, with sandy clay, clay, sand and

gravel subsoil, suitable for mixed farming and grazing. The surface of the south half is rolling prairie and the north half low level prairie. There is no timber. There are a great number of sloughs where hay could be cut in dry seasons. There is a permanent supply of good water in the creek running southwest, crossing sections 5, 6, 8, 16, 17, 21, 28, 33 and 34. There is plenty of fresh water in the sloughs, but in a dry season there would be none there. There is no water-power in the township. The past summer was cold and wet, but no summer frosts occurred. No wood for fuel, coal nor lignite, stone quarries or minerals were found. Prairie chickens and duck were seen. —*J. A. Côté, D.L.S., 1903.*

Township 35.—This township can be reached by the Prince Albert trail, following the telegraph line. The soil is black loam, with clay, sand and gravel subsoil, suitable for mixed farming and grazing. The surface in the northwest half is covered with heavy poplar and willows, with prairie spots; the southeastern part is rolling to level prairie. The only timber consists of poplar, 2 to 6 inches in diameter. There are a great number of sloughs in which hay could be cut in dry seasons. There is no permanent supply of good water ; the numerous small ponds being alkaline. There is plenty of fresh water in the sloughs, but in dry seasons there would be none. There are no streams and no water-power. We had a cold and wet season, but no summer frosts. The only fuel is poplar and willows. No coal nor lignite, stone quarries or minerals were found. Prairie chickens and ducks are numerous.—*J. A. Côté, D.L.S., 1903.*

Township 36.—This township can be reached by the Prince Albert trail, which crosses the northwest corner. The soil is black loam, with clay, sand and gravel subsoil, suitable for mixed farming and grazing. The surface is covered with a thick growth of poplar and willows, and prairie spots, and is rolling to level. The only timber consists of poplar 2 to 6 inches in diameter. There are a great number of sloughs where hay can be cut in dry seasons. There is no permanent supply of good water; the numerous small ponds and lakes are alkaline. There is plenty of fresh water in the sloughs, but in dry seasons there would be none. There are no streams in the township and no water-power. The summer was cold and wet, but there were no summer frosts. The only fuel is poplar and willows. No coal nor lignite, stone quarries or minerals were observed. Prairie chickens, duck and rabbits are found.—*J. A. Côté, D.L.S., 1903.*

Township 37.—This may be styled a first-class township. There are very few quarter sections which will not make good farms. The soil is either black clay or clay loam. There is sufficient timber to last the settlers for fuel for a number of years to come. The timber is poplar and willow, of which I found none exceeding 8 inches in diameter, the largest mostly dead. It is all in scattered bluffs, mostly south of the north chord. The balance of the land is all open prairie, nearly level. There are a number of small sloughs and two small lakes, sufficiently large to require to be traversed. I found no hay meadows, but large quantities of hay may be cut on the high dry land. There are a number of settlers in the northern part, from all of whom I took declarations. The Touchwood Hills and the Prince Albert cart trail enter the township on section 3, and leave it on section 30. There is a telegraph line a short distance west of and practically parallel to the cart trail. I found also the survey of the Canadian Northern Railway across it, but as I was not certain if this would be the permanent location I made no note of it. There is no running water, but the settlers had all a sufficient supply of good water, at a depth of from 10 to 12 feet. The nearest railway stations are Saskatoon and Rosthern, there being a good trail to each. Only one settler had been there early enough last spring to put in any crop. He had an excellent crop of potatoes grown on the newly turned sod. The climate is good, there being no indications of summer frosts. There were no stone quarries nor minerals. The only game I saw was prairie chickens and muskrats. Both are to be had in abundance.—*James Dickson, D.L.S., 1903.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN—RANGE 23.

Township 38.—The land in this township is almost entirely first-class. There is a large and very wet alkaline slough east, and another drier and smaller one west of Gertrude lake. The land is knolly and rough along a large part of the west boundary. With these exceptions, it is mainly first-class land, a fine clay loam almost level. There is no timber south of the south chord. North of that, and also around the eastern side of Gertrude lake, there are bluffs of small poplar and balm of Gilead sufficient to afford a supply of wood for years. Deadmoose and Gertrude lakes are beautiful sheets of water, clear as crystal, but bitter and utterly unfit for use Neither of them has any outlet. A fine creek of good water enters Deadmoose lake in section 34. Another small one enters from the east on section 36. I found twenty-four settlers in the township. I took declarations from twenty of them. The remaining four said they did not intend settling permanently. All came from the United States last summer. They are Germans and Austrians, and seem to be a very desirable class of people. They are well supplied with stock and implements, and are enthusiastic about the country. Those who had arrived sufficiently early had put in a small crop, which turned out first-class. There are no hay meadows, but any quantity of good hay is being cut on the high lands. The water in the sloughs is good, and a number of the settlers have good wells at a moderate depth. The nearest railway station is Rosthern, from which there is a good wagon trail. The climate is good; to this the crops bore ample testimony. Ducks, geese, prairie chickens, muskrats and badgers are plentiful. There are no stone quarries nor minerals.—*James Dickson, D.L.S., 1903.*

Township 41.—The best route for reaching this township is as follows:—Start from Duck lake and go easterly to Batoche, thence along the Batoche branch of the Qu'Appelle and Prince Albert trail to the main trail from Qu'Appelle to Prince Albert, thence northeasterly and south of Wakaw lake by an unsurveyed trail to the point in township 43, range 25 where this trail meets an old trail from Prince Albert to Basin lake, thence southeasterly passing south of Shannon lake and South of Basin lake. The trail enters the township at the south of Basin lake in section 30. At present this route is in good condition. Black loam from 2 to 18 inches in depth forms the soil in nearly every part. The subsoil is usually a light loam or clay in some cases sandy and sometimes stony. The soil is very suitable for grain raising and farming in general. The surface is mostly covered with brush and timber there being very little open prairie. There are about 600 acres of open prairie through the township, situated in part of northwest quarter of section 34, parts of sections 33, 32, 31, 30 and 29, the west parts of sections 18 and 19, also in parts of sections 10, 11, 12, 1 and 5. The timber is poplar with some scattered birch in the south and is found mostly in clumps and scattered through the central and southern portions. The average diameter is about 6 inches. Timber is found on sections 5, 6, 7, 9, 10, 11, 12, 13, 14, 21, 26, 27, 34, and on Pelican island. There are scattered clumps and trees through other sections. All told there are about 2,200 acres of compact and scattered timber. The remaining part of the township where not broken by marshes, lakes or ponds is covered with poplar, willow. hazel or cherry brush and other scrub; and in section 36, there is fallen timber. There is not very much hay through the township, it being generally found in small marshes or along the edges of the lakes and ponds. However, there is a large hay marsh in section 1, the area of which is about 200 acres. Along Middle lake in sections 12, 13, 14 and 22 there is a strip of hay marsh varying from 2 to 20 chains in width. The area of this strip is about 300 acres. The remaining part of the hay is found in small marshes from 2 to 30 acres in area. These small marshes are found in sections 5, 6, 7, 8, in section 4, north of Lake Number 1, in sections 9, 10, 15, 16, 21, and 28 and along Middle lake in sections 27, 34 and 35. The quality is medium and the hay does not grow very high. In those sections where there are tracts of open prairie the grass is of very good quality for feeding purposes. There is an abundant supply of fresh water in the township in the many ponds and creeks.

The water in Middle and Basin lakes is unfit for domestic use owing to its bitter taste. This is evidently caused by the dead poplar in the water. The creeks are small and occasionally dry up. Two empty into Basin lake, one flowing through the northwest quarter of section 31. The width of this creek is about 2 feet and the depth about 1 foot. The current is slow. Another creek having its source in section 30, flows through sections 30, 31 and 32 close to the fifth meridional section line and empties into Basin lake. This stream averages 2 feet in width, is 2 feet deep and flows at the rate of about 2 miles per hour. The course is partly underground. The remainder of the streams run only in wet seasons, and average from 1 to 3 feet in width and are from 6 inches to 2 feet deep. The land is not liable to floods. For fuel, poplar timber is the most available. There are no coal nor lignite veins in the township. There are no stone quarries nor minerals of economic value. There is much small game throughout the township consisting of many varieties of wild duck, partridge. ruffed grouse, prairie chicken, rabbits, hare and cotton-tails. Although no large game was seen, jumping and black-tailed deer inhabit the district. Of fur-bearing animals the mink, fox and muskrats are found, the latter being very numerous. There are also a few coyotes, weasels and skunks. Basin lake contains some fish, there being large numbers of black suckers. It was learned from settlers in the vicinity that Middle lake also contains fish. For description of climate see that given for township 42, range 21, west of the second meridian.—*George Ross, D.L.S., 1903.*

Township 42.—This township can be reached most conveniently by a trail leading from Kinistino or Flett's Springs. This trail passes through township 43, range 22, entering the township in the eastern part. Just where this trail crosses the boundary line and its subsequent course, could not be ascertained on account of its not being much used and having thus become partly obliterated. With very little trouble a trail could be cut through. On account of the southern part of the township being broken by lakes, hills and marshes an entrance could not be easily made from the south. There are a few tracts of prairie land in the northwestern part, bordering on Basin lake. These tracts are from five to twenty-five acres in area. In all, the area is not more than one hundred acres. The remainder of the township not under water is covered with poplar timber or brush and windfall, in the proportion of about five to one. Considerable areas of timber are found on all sections north of Basin lake and on those to the east except 1, 2, 3, 10 and 11 where there is very little. The brush and scrub consist of willows, young poplar, hazel and cherry. The only hay of any value is that in the marsh bordering the north shore of Middle lake in sections 2 and 3. Fifty acres is approximately the area of the hay land. The soil in this township is genrally first or second class, consisting of a surface layer of black sand, sandy loam or black loam ranging in depth from two inches to two feet. Subsoil is usually clay or a clay loam. In the hilly portions clay and sand come through to the surface in many places and are generally mixed with stone. In the northern part there is much good land. The southern portion although the soil is fair is much broken and hilly and only small scattered parts are fitted for agriculture. The water in all but Basin and Elkona lakes is fresh and of good quality. In the north there are two small lakes, one in sections 33 and 34 and the other in section 32. From the south end of each a small creek flows into Basin lake. Another small creek flows into Basin lake through section 31 from a muskeg on the north boundary. The streams average two feet in width and about a foot in depth. The current would probably average about two miles per hour. The water in Elkona and Basin lakes is bitter. This is evidently due to the large quantities of dead poplar timber in them. Good fuel may be had throughout in the form of dry windfall and live poplar. There are no stone quarries nor minerals of economic value. The game consists of wild duck, partridge and ruffed grouse; rabbits, hare, cotton-tails and some jumping and black-tailed deer. There are many fur-bearing animals. Muskrats are found in large numbers. Mink, red fox, badger, lynx,

weasel and skunk are scarcer. There are fish in Basin lake. Black suckers are perhaps the most numerous. For description of climate, see that given for township 42, range 21, west of the second meridian.—*Geo. Ross, D.L.S., 1903.*

Township 43.—After completing other surveys I proceeded to the survey of this township from Flett's Springs on the Prince Albert and Melfort road; I went by trails amongst the settlers, keeping to the east and south of Waterhen lake and found a very fair road to about the centre of range 22, township 44. From this point a road had to be cut and cleared through heavy continuous poplar woods. The surface soil is a black loam of fair depth with a clay subsoil generally. The country if cleared of timber would be suitable for general farming, and until it is cleared it is not adapted for anything. The township is mostly covered with timber. It consists of poplar, balm of Gilead and birch with scrub. It is not large enough for lumbering purposes, but is very suitable for cordwood. Very little hay land exists. The water is all good. A few creeks of small size cross the township. A marshy lake occupies portions of sections 33 and 34; another lake covers parts of sections 24 and 25 and two beautiful narrow lakes with high banks extend into the township from the township south of it. This township would not be subject to floods. There are no water-powers. I saw no indications of summer frosts. Poplar wood for fuel is found all over the township. No lignite was discovered and no stone quarries are known to exist. No minerals of economic value were seen. Bears as usual are very common; from the tracks and trails, deer of several kinds must be numerous at some seasons of the year. Partridges were seen.—*G. B. Abrey, D.L.S., 1903.*

Township 44.—After completing the survey of other townships lying east of this one, I went to the survey of this by way of Flett's Springs on the Prince Albert and Melfort road, going in on the east and south sides of Waterhen lake. Much of the land already surveyed up to and adjoining this township being occupied by settlers who have made trails or roads to their places, gave easy access towards this township. From about the centre of range 22, I had to cut out and clear a road through continuous timber in making the survey. There are two portions of the township covered by prairie, one at the northwestern corner in the vicinity of Carrot river and the other at the southeastern side, being an expansion of a strip of prairie from range 22. This prairie is of very small extent. The rest of the township is continuous woods; if the timber was cleared off the township would be suitable for general farming. It is not adapted for any purpose with the timber standing. The soil is a black loam of fair depth, with a clay subsoil. The timber is composed of poplar and balm of Gilead, with some birch. Frequently the trees run up to 12 inches in diameter. The timber is not large enough for board logs, but makes excellent cordwood. This description is general for the township. Very little hay land is found. All water is good. No alkaline water was found. The water is probably permanent. Excepting the few lakes and streams not much water was found. Carrot river crosses the northwest corner of the township. A few other small streams are met with; two lakes were surveyed. The land is not liable to be flooded. There are no water-powers unless it might be by damming Carrot river. There is a strong current in this river, and at times the volume is considerable. The river flows between high banks. I saw no indications of summer frosts. Poplar wood for fuel is abundant everywhere. No lignite was seen and no stone quarries are known to exist. No economic minerals were found. Bears are numerous. From the many trails and tracks of deer seen, deer must be plentiful at certain seasons of the year.—*G. B. Abrey, D.L.S., 1903.*

Range 24.

Township 29.—The east half of the township is covered with several large alkaline sloughs. In the west half the soil is of good quality, and this part of the township is

well adapted for farming, although the soil requires a good deal of moisture. Hay is very scarce. All the sloughs and ponds scattered throughout the township contain good water. Good water can also be got by digging a few feet from the surface. There is no timber nor any mineral of any kind.—*A. F. Martin, D.L.S., 1903.*

Township 30.—A large alkaline slough covers the greatest part of the east half of section 29 and also of the northwest quarter of section 22. The land is rolling and the soil consists of a very good clay loam. Section 36 is very stony. Good water is scarce and can only be found in the few sloughs scattered through the township. There are many hay sloughs which, however, were under water at the time of the survey. There is no timber nor any minerals of any kind. A large lake covers the greatest part of sections 36 and 25.—*A. F. Martin, D.L.S., 1903.*

Township 31.—I travelled from Dundurn station on the Canadian Pacific Railway (Prince Albert branch) over a rolling prairie country, without any trail, to this township, distance about sixty miles. The soil is a sandy loam, with clay and gravel subsoil, rated second and third-class, suitable for grazing or cultivation. The surface is a gently rolling prairie, and good fresh water is found in sloughs, around which hay may generally be found. No fuel, stone quarries, minerals or water-power. A lake about two miles long and from ten to fifteen chains wide is situated on sections 28, 29 and 32, lying in a northwesterly direction. Wild duck are plentiful, and antelope are occasionally seen.—*E. J. Rainboth, D.L.S., 1903.*

Township 32.—This township was reached from Dundurn station on the Canadian Pacific Railway (Prince Albert branch) over a rolling prairie country without any trail, distance about 60 miles. The soil is a sandy loam with clay subsoil, and is rated first and second-class, suitable for grazing or cultivation. The surface is a level or gently rolling prairie, with numerous sloughs containing good fresh water, around which is generally found a good growth of long grass or hay. No fuel, stone quarries, minerals or water-power. Wild duck are plentiful, and some few antelope.—*E. J. Rainboth, D.L.S., 1903.*

Township 33.—The township is situated about sixty miles across prairie from Dundurn station. The soil is principally clay loam with a clay subsoil. There are several gravelly and stony ridges, unfit for farming, but growing a fine quality of grass, which renders the land fit for ranching. The surface is high rolling prairie, with a few level pieces of ground. There are no hay meadows of any extent. The water in the permament lakes is all strongly alkaline. As all the small ponds of fresh water dry up in summer, water would have to be obtained by sinking wells. The country is high, and probably subject to summer frosts. There is no fuel, no coal, no quarries, no minerals and no game.—*J. E. Woods, D.L.S., 1903.*

Township 34.—The township is situated about 60 miles east of Dundurn station, across the prairie. The soil is principally clay with large ridges of stony and gravelly ground, which would be more suited to ranching than to farming. The surface is mostly a high rolling prairie, with an occasional flat piece of ground. There are a few bunches of willows on sections 20, 21, 28 and 29. There are no hay meadows of any account. The water in all the permanent lakes is alkaline, and it is a question whether good water could be obtained from wells. The country is high, and probably subject to summer frosts. There is no fuel, no coal, no quarries, no minerals and no game.—*J. E. Woods, D.L.S., 1903.*

Township 35.—The surface of this township is undulating and hilly, abounding with fresh water ponds and hay marshes. Many of the hills are thickly strewn with boulders. The sections in the northeast portion of the township contain some poplar timber of small size, with willow and poplar brushwood. The surface soil is a dark sandy or clay loam from 6 to 10 inches in depth, while the subsoil is a heavy clay sometimes mixed with gravel. Some sections are adapted for cultivation, and the whole is suitable for pasture land. As to quality, the land might be classed

as second grade. An old unused trail crosses the township in a northwesterly direction, going to Batoche, but there are no trails in use at present. There is no difficulty in travelling in any direction across the prairie, the country westward to Saskatoon being comparatively level, and the Prince Albert and Qu'Appelle trail passes within seven miles of the northeast corner of the township. There are no running streams nor permanent lakes, and no indications of economic minerals, but there are both limestone and granite boulders suitable for building. Elk and antelope were seen ; ducks and prairie fowl were plentiful and foxes and muskrats very numerous. Vegetation was not affected by summer frosts after the fine weather began towards the end of May. The opening up of real spring weather was later than usual this year, although snow disappeared early in April. The hay supply would probably meet the demand of the country if applied to mixed farming. Building timber might have to be hauled 20 miles or upwards from the northeast, and wood for fuel would be brought from the same quarter, the timber in the township not being sufficient to supply the demand.—*Thos. Fawcett, D.T.S., 1903.*

Township 36.—In the westerly portion of this township the surface is very hilly and undulating, the crests rising on an average some 50 feet above the lower places. The easterly half is more or less level land. Some sections joining the east boundary contain a quantity of small poplar timber, the trees not exceeding 10 inches in diameter. There is also considerable willow and poplar brush. The soil is a black sandy or clayey loam about 8 inches deep with a clay subsoil. The vegetation indicates great fertility. There is some excellent hay in the marshes, and abundance of fresh water in the ponds and sloughs. While parts of the township would be suitable for cultivation it is more especially adapted for stock or for mixed farming. There is a small percentage of stony land on the hilly portions. The land throughout would average a good second-class. An unused trail traverses the township going to Batoche. There are no trails in use at present, but the township is accessible from all directions. The timber above mentioned would partially supply the demand, a full supply could be obtained by going some 20 miles northeast. There are no living streams of water nor permanent lakes. No indications of minerals of economic value are seen, and no outcrop of rock for building stone, but boulders which would answer the purpose are found on some sections. Game consisting of elk, antelope, red deer, foxes and wolves, also ducks and prairie chickens were seen in the township.—*Thos. Fawcett, D.T.S., 1903.*

Township 37.—I proceeded to the survey from Toronto by way of the Canadian Pacific Railway to Saskatoon. At Saskatoon, I procured horses and wagons and crossed Saskatchewan river and went easterly along a trail to the third meridian, intersecting the same near the northern boundary of township 37. I commenced the season's surveys at this point and in continuing the surveys followed along or near the trail to the camp from which the township was subdivided. The trail followed is quite sufficient for the requirements of early settlers. The surface soil of black loam averages about four inches in depth, covering a sandy subsoil. The tops of the hills are generally stony and strewn with boulders, with a gravelly subsoil and with a thinner depth of loam. But for the broken nature of the country, much of it might be classed as number one. It is too broken and rough for general farming, but is suitable for ranching cattle and horses. The township may be said to be all prairie for there is no timber and very little scrub. The margins of the many sloughs and marshes yield grass that may be made into hay. There are no running streams and the water, though abundant, is all in the hollows. We found it generally free from injurious alkali and used it generally. There are no water-powers to develop. We did not find that summer frosts were prevalent. Poplar wood for fuel may be obtained in some of the adjoining townships. No coal or lignite was seen. Limestones and other boulders are scattered over the hills and may be used for lime and buildings; no other economic minerals were seen and no fixed rock shows at the surface. Many ducks and

prairie chickens may be had; antelope and other deer were seen, while foxes and badgers are very numerous.—*G. B. Abrey, D.L.S., 1903.*

Township 38.—I proceeded to the survey from Toronto by the way of the Canadian Pacific Railway to Saskatoon, thence crossed Saskatchewan river, and went easterly along a road or trail to the third meridian, intersecting it near the southern boundary of township 38, still continuing easterly off and on along the trail subdividing the intervening ranges to range 24 where we camped on Mount Carmel and from it the subdivision was made. This trail was easily followed, was in fair condition and good enough for the requirements of early settlers. The soil is a black loam and similar to that generally found in this locality averaging about four inches in depth, below which the subsoil is sandy. There are many gravelly and stony hills and ridges. The country may be described as all hills and hollows and it is better adapted for ranching than for agriculture. About one-fourth of the surface is covered with poplar timber and scrub, the balance being prairie. Much of the poplar is suitable for building log houses and cattle sheds such as are common in the country. Fire wood is abundant for local uses. Ponds and small hay marshes are found everywhere between the hills. The water is all contained in the ponds and marshes and is generally good for drinking and domestic use. The ponds are usually deep with steep shores and would not fluctuate in area greatly by changes of the seasons. There are no streams in this township. No frosts occurred during the period of survey. No coal or lignite shows on the surface. Limestone boulders are scattered over the surface and may be used for burning into lime and with other boulders might be formed into buildings. No fixed rock was seen. Many ducks and prairie chickens are found. Antelope and other kinds of deer are seen and foxes and badgers are numerous.—*G. B. Abrey, D.L.S., 1903.*

Range 25.

Township 29.—The whole township is open prairie with a few small scattered ponds throughout. The soil consists of clay loam with subsoil of clay on the level prairie, and with subsoil of sand on the ridges. Hay is scarce. There is no timber of any kind. Water is good in all the ponds. There was no mineral noticed. This township is well adapted to farming, but the soil requires a good deal of moisture.—*A. F. Martin, D.L.S., 1903.*

Township 30.—The soil consists of clay loam with subsoil of clay in the low lands and with subsoil of sand on the ridges. The country throughout is rolling open prairie. Hay is very scarce. Good water is to be found in all the numerous small ponds scattered through the township. There is no timber to be seen. There are no minerals of any kind. This country is generally dry and is well adapted to farming, but the land requires a good deal of moisture.—*A. F. Martin, D.L.S., 1903.*

Township 31.—This township was reached across country without any trail over a rolling prairie from Dundurn station on the Canadian Pacific Railway (Prince Albert branch), distance about 55 miles. The soil is a sandy loam with clay subsoil, rated second and third-class, suitable for grazing or cultivation. The surface is a gently rolling prairie, with scattered clumps of small poplar and willows, fit for fuel or fencing. Good fresh water is found in small ponds or sloughs, around which a small quantity of hay may be found. No stone quarries, minerals or water-power. Wild duck, prairie chicken and deer plentiful.—*E. J. Rainboth, D.L.S., 1903.*

Township 32.—This township was reached by travelling across country without any trail over a rolling prairie from Dundurn station on the Canadian Pacific Railway (Prince Albert branch), distance about 55 miles. The soil is a sandy loam with clay loam subsoil and patches of boulders. It is rated second and third-class, and is suitable for grazing or cultivation. The surface is a rolling prairie, with scattered clumps of small poplar and willows fit for fuer or fencing. Fresh water is found in small

ponds or sloughs, where also may be found a fringe of hay in small quantities. No stone quarries, minerals or water-power were found. Little Manito lake, whose water is alkaline, extends across the southern part of the township. Ducks, prairie chicken and deer were plentiful.—*E. J. Rainboth, D.L.S., 1903.*

Township 33.—This township, situated 50 miles from Dundurn, is reached by travelling across prairie. The soil, which is principally clay with some patches of gravel, is well adapted to cultivation. With the exception of the southeast quarter of the township, the surface is all rolling prairie. The southeast quarter is mostly covered with willow and poplar scrub; some of it fit for fuel. There are only a few small hay meadows and of no consequence. There are no permanent bodies of water. The growth seemed backwards, but I have no information as to summer frosts. There is no coal, quarries, minerals or game.—*J. E. Woods, D.L.S., 1903.*

Township 34.—This township is situated about 50 miles across prairie from Dundurn. The soil is principally clay, with occasional patches of gravel, containing a large quantity of clay. It is well adapted to cultivation. The surface is rolling prairie, without any timber or scrub. There are numerous small hay meadows scattered over the township, principally in the northern part. There are no permanent bodies of water. The spring was cold and backward, but I have no information as to summer frosts. There is no fuel, no quarries, no minerals and no game.—*J. E. Woods, D.L.S., 1903.*

Township 35.—The surface of this township is undulating and hilly in the vicinity of both the north and south boundaries, while near the centre some of the sections are comparatively flat. Surface water is abundant in sloughs and ponds during the earlier summer months. A considerable portion of the land is strewn or imbedded with erratic boulders averaging from 6 to 8 inches in diameter. There is no timber of any description, nor are there any running streams in the township. The country is well adapted for a summer range for pasture land or for mixed farming. As to its classification for agricultural purposes the land would rank from second to third-class. Minerals of economic value were not seen, nor were there any indications. The nearest timber supply would be some 12 miles to the north. The township is easily reached from Saskatoon, but there are no travelled roads through it. Jumping deer and antelope seem plentiful in the locality, also foxes, muskrats, ducks, grouse and plover.—*Thos. Fawcett, D.T.S., 1903.*

Township 36.—There are no travelled roads passing through the township, but it in easy access from all directions. Saskatoon is the nearest base of supplies at present. The surface soil is a black and sandy loam from 6 to 12 inches deep with a clay subsoil. Some of the hills are strewn with boulders, both granite and limestone, which will furnish material for foundations for buildings. The township is adapted for mixed farming. The surface is undulating and considerably broken by sloughs and lakes. There is no timber of any description; the nearest supply will be about 12 miles northwest. There are marshes and flats in most sections which would furnish a limited supply of hay. During the earlier months of spring and summer there is an abundant supply of fresh water in the ponds and marshes. The permanent lakes are generally alkaline. There are no running streams, nor did we observe any springs of water. The vegetation in June was thrifty, and showed no indications of summer frosts. There are no indications of coal, nor of any economic minerals. Wood will be the cheapest fuel supply for some time to come. Red deer, antelope, elk, foxes, muskrat, polecat and wolves are seen on the prairie. Ducks, grouse and plover are plentiful in season.—*Thos. Fawcett, D.T.S., 1903.*

Township 37.—I proceeded to the survey of this township from Toronto by the way of the Canadian Pacific Railway to Saskatoon, from there I crossed the Saskatchewan river with my outfit and went eastward over a road or trail to the third meridian, intersecting the northern limit of township 37, near the said meridian. I

then subdivided the several intervening townships following along near the trail and camped near it for the survey of this township. This trail is easily followed and is good enough for the uses of the early settlers. The surface soil is black loam averaging about 4 inches in depth over a sandy subsoil. There are many gravelly hills and ridges with less surface soil and usually the hills are covered with stones and boulders. Several settlers came to the neighbourhood while the survey was in progress, but had not located land. The township is generally too broken by hills and hollows and ponds for farming and is more adapted for cattle and horse ranching. This township is all prairie with no timber or scrub growing. Fire wood for fuel may be had in the adjoining township to the east and in other directions. Small ponds and hay marshes are very numerous in the hollows between the ridges and hills. The water is generally suitable for domestic use and my party did not find any alkaline effects from its general use. There are no running streams. As the shores of the ponds are often steep changes of wet or dry seasons would not cause much fluctuation in the areas of the waters. I would not anticipate much damage to crops of the usual kinds from summer frosts. No coal or lignite veins were seen nor any minerals of value. Limestone and other boulders strew the surface and might be used for lime and building purposes; no fixed rock was seen. Many ducks and prairie chickens are to be obtained. Antelopes and other deer were seen while foxes and badgers are very common.—*G. B. Abrey, D.L.S.; 1903.*

Township 38.—I proceeded to the survey from Toronto by the way of the Canadian Pacific Railway to Saskatoon, where I completed my outfit. I then crossed the Saskatchewan river and went eastward over a trail to the third meridian reaching it near the line dividing townships 37 and 38. I commenced surveys here following along or near the said trail easterly to the camp from which this township was subdivided. The trail is easily followed and would serve the requirements of early settlers. The top soil of black loam averages in depth about 4 inches and is similar in all respects to that occurring generally throughout this part of the country. The subsoil is sandy ; the higher parts are often gravelly with a thinner covering of surface soil and generally the tops of the hills are strewn with stones. The country is much broken with hills and hollows and the surface very uneven. It is too rough and broken to be desirable for farming, and is better adapted for cattle and horse ranching. Most of the township is prairie but some poplar timber and scrub is found. Hay may be obtained along the shores of many ponds and marshes. There are no streams as all of the water is confined in the ponds, sloughs and marshes. It is abundant and generally suited for domestic purposes as there is not enough alkali to be injurious. There are no water-powers. Summer frosts did not seem to be prevalent. Fuel of poplar wood may be had in sufficient quantities for local use. No coal or lignite was seen. Limestone and other boulders can be picked up for lime and building, but no economic minerals were seen and no fixed rock shows at the surface. Some settlers commenced to make improvements while the survey was in progress. Many ducks and prairie chickens may be had. Antelopes and other deer were seen. Foxes' and badgers' holes and burrows honey-comb all dry places.—*G. B. Abrey, D.L.S., 1903.*

Range 26.

Township 29.—A deep ravine enters this township in section 34 and runs in a southeasterly direction through sections 35, 26, 23, 14, 13, 12 and 1. The bottom of the ravine is covered either by lakes or muskeg containing very alkaline water. That part of the township situated on the west side of the ravine is very rough and hilly and contains many sloughs and ponds, in all of which good water is found. The country on the east side of the ravine undergoes a sudden transformation. It becomes more level and the land becomes of a much better quality. The high knolls stop at

the ravine. There is quite a growth of poplar from 3 to 6 inches in diameter along the west bank of the ravine in sections 34, 27 and part of 22. A good quantity of hay is to be found about the sloughs. There are no minerals of any kind. The country on the east side of the ravine rates as third-class and second-class on the west. All the sloughs and ponds contain good fresh water.—*A. F. Martin, D.L.S., 1903.*

Township 30.—A deep ravine runs from section 33 inclusively, southward through sections 28, 21 and 16, and then southeasterly through sections 9 and 3. A large lake covers part of sections 28 and 29 and extends north and south following the ravine. The water in this lake is quite reddish and is very salty. Large flocks of wild geese and ducks swarm in this lake. The country on the west side of the ravine is very broken and hilly, but it becomes more level on the east side. A large quantity of good hay can be gathered about the numerous sloughs to be found therein. A good sized bluff of second-growth poplar is to be found on the slope of the banks of the ravine on the east boundary of sections 4 and 9. There are no minerals of any kind. Water is very good in all the sloughs and ponds. The soil on the west side of the ravine is composed of a thin coat of sandy loam, with a subsoil of sand. In sections 29 and 33 and in the vicinity of the lake referred to, the land is literally covered with stones, on the ridges the soil is gravelly and stony.—*A. F. Martin, D.L.S., 1903.*

Township 31.—This township was reached by travelling about 50 miles, without any trail, over a rolling prairie from Dundurn station on the Canadian Pacific Railway (Prince Albert branch). The soil is a sandy loam, with clay loam subsoil and some scattered boulders, and is rated second and third class, suitable for grazing or cultivation. The surface is a rolling prairie. Fresh water is found in a number of ponds or sloughs surrounded by a fringe of hay, and a small lake was located on section 9. No stone quarries, fuel, minerals or water-power. Ducks and chickens were plentiful.—*E. J. Rainboth, D.L.S., 1903.*

Township 32.—This township was reached by travelling about 50 miles across country, without any trail, over a rolling prairie from Dundurn station on the Canadian Pacific Railway (Prince Albert branch). The soil is a sandy loam and gravelly subsoil rated second, third and fourth class, with some patches of boulders. It is suited for grazing or cultivation. The surface is a rolling prairie, and fresh water is found in a number of small ponds or sloughs around which may also be found a small quantity of hay. No stone quarries, fuel, minerals or water-powers were found. Little Manito lake extends east and west across the middle of the township. Its water is alkaline. Ducks and prairie chicken were plentiful.—*E. J. Rainboth, D.L.S., 1903.*

Township 33.—This township is situated about 40 miles due east across prairie from Dundurn. The soil is principally clay somewhat stony on the ridges, and is well adapted to farming. The surface is high rolling prairie, with numerous small ponds in the early spring. There is no timber, no hay meadows of any extent, no permanent bodies of water, no fuel, no coal, no stone quarries, no minerals. A few antelope were the only game seen.—*J. E. Woods, D.L.S., 1903.*

Township 34.—I reached this township by travelling across the prairie from Dundurn; the prairie was hard, and travelling very good. The soil is principally clay, with a few gravelly and stony ridges, suitable for wheat growing. The surface is all a rolling prairie, devoid of timber or scrub. There is not much hay land; what there is of it is in small patches. The water is all alkaline, with the exception of a few small ponds that dry up in summer. I did not see any summer frost in this district. The indications are that the climate is dry and cold in winter. I have not seen any supply of fuel to be had excepting coal to be hauled from the railway. There are no quarries, no minerals and no game.—*J. E. Woods, D.L.S., 1903.*

Township 35.—This township is easily reached from Saskatoon, some 40 miles west, which is at present the nearest town with railroad facilities. There are no travelled roads through the township, but it is easy of access from any direction. The

soil throughout is a dark sandy or clay loam on a clay subsoil. The surface is rolling, and broken by lakes and ponds. The township is adapted for mixed farming. There is no timber; the nearest supply would be about 15 miles distant in a northwesterly direction. Hay marshes, which are pretty generally scattered over the township, would produce enough hay for local consumption. Fresh water is plentiful in the smaller ponds and marshes. The larger lakes are very much impregnated with alkaline substances. There are no streams of running water, nor did we observe any springs. The luxurious growth of grass, &c., would indicate favourable climatic conditions. No indications of coal or other minerals of economic value were seen. Stone for foundations and other building purposes, both granite and limestone, is present in the shape of boulders. Red deer, antelope, foxes, wolves and muskrats seem plentiful, while the lakes and marshes are well stocked with ducks, plover and occasionally geese. There are also prairie chickens, but these are more plentiful where the country is settled.—*Thos. Fawcett, D.T.S., 1903.*

Township 36.—The entire township is open rolling prairie, partly broken with sloughs and ponds of water, which provide a supply during the earlier summer months and some years permanently. The soil is a dark clay or sandy loam overlying a clay subsoil. Many of the hills and some portions of the flat surface are covered with round well-worn boulders. Vegetation appears thrifty, and indicates a strong fertile soil. The country is well adapted for pasturage, and some of the sloughs would afford a fair supply of hay; but there is no reason why a good percentage of the land should not be adapted to agricultural purposes. The land would rank generally as second-class. There are no travelled roads passing through the township, but it is easily accessible from any direction. There is no timber in the township, but considerable within a day's (return) journey to the west. No minerals of economic value were seen, but stone for building and lime will be found in abundance in the shape of boulders and erratic block masses. As to game, one may expect to find elk, red deer, antelope, ducks, prairie chickens, foxes, wolves and muskrats. There are no living streams flowing through the township, but good water could usually be obtained by digging.—*Thos. Fawcett, D.T.S., 1903.*

Township 37.—I proceeded to this survey from Toronto by way of the Canadian Pacific Railway to Saskatoon. I crossed the Saskatchewan river there and travelled easterly with my outfit along a trail or road to the third meridian, reaching it near the northern boundary of township 37. From here I made subdivisions of townships, continuing east and along the route of the trail to the camp, a short distance south of the road, from where the subdivision of this township was made. This road was easily followed, and is sufficient for the requirements of early settlers. The soil of this township is similar to others in the locality, and averages about 4 inches in depth of black loam over a subsoil of a sandy nature. The hills are often gravelly, and nearly always scattered over with stones and boulders. Because of the broken nature of the surface the township is not adapted for general farming, but is better adapted for cattle or horse ranching. Nearly the whole township is prairie; some poplar timber and scrub appear here and there only. Small ponds and marshes are everywhere among the hills, and water is abundant. Hay marshes are not large, but grass grows on the margins of most wet places, and hay may be obtained. There are no running streams, and all of the water is in the ponds and marshes; it is usually suitable for drinking or domestic use. The water areas would not fluctuate to so great an extent from changes of seasons as would be the case in a flatter country. I observed no evidence that summer frosts would interfere with the raising of crops suitable to the country. No coal or lignite was seen. Limestone boulders may be picked up and burned into lime, and they with other boulders may be used for building. No fixed rock was seen, and no economic minerals were found. Many ducks and prairie chickens are to be had. Antelope and other deer were seen, and foxes and badgers were numerous.—*G. B. Abrey, D.L.S., 1903.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN— RANGE 26.

Township 38.—I proceeded to the survey from Toronto by way of the Canadian Pacific Railway to Saskatoon; I then crossed the Saskatchewan river and went easterly along a trail or road to the third meridian, reaching it near the southern boundary of township 38. From here I commenced the subdivision of townships and continued eastward along the route of the trail to the camp a short distance north of it, from which the survey of this township was made. This trail was easily followed, was in fair condition and sufficient for the requirements of early settlers. The soil averages about 4 inches of black loam with a sandy subsoil; like the rest of this hilly part of the country the hills are often of gravel and covered with boulders. From its broken nature it is not suited for general farming and would be better adapted for ranches. The country is generally prairie, but a considerable portion of it is covered with poplar and willow scrub; the poplar is of sufficient size to be used for the buildings of the settlers. Small ponds and marshes are numerous, interspersed among the hills, and water is abundant. Around the marshes hay may be cut. The water is all in these ponds and marshes. No running water exists. The water covered areas would fluctuate to a less extent than would be the case in a flat country. Water is generally suitable for domestic use and but little of it is alkaline. I saw no evidence that summer frosts would interfere with the raising of crops. No coal or lignite was seen. Limestone boulders may be used for burning into lime and they with other boulders could be used for buildings. No fixed rock was seen and no economic minerals exist. Many ducks and prairie chickens are found. Antelopes and other kinds of deer are seen. Foxes and badgers are very common.—*G. B. Abrey, D.L.S., 1903.*

Range 27.

Township 29.—This township is covered by a continual succession of ponds, sloughs, and knolls, varying in height from twenty to seventy-five feet. A fair quantity of hay could be gathered from and about the sloughs. There is no timber nor minerals of any kind. The whole township is covered with a luxurious growth of bunch grass. The soil is composed generally of sand on top of the hills while clay loam is found between the hills. The soil rates third-class throughout. Good fresh water is found in all the ponds and sloughs. There is no timber nor minerals of any kind.—*A. F. Martin, D.L.S., 1903.*

Township 30.—This township is rough and hilly with numerous ponds and sloughs and knolls varying in height from twenty to seventy feet. These knolls, some with high peaks, others in the shape of a ridge and a few in the form of beaver dams, resemble the Rocky mountains in minature. At a distance, the country looks like a huge choppy sea. Water is good in all the sloughs and ponds. Good hay grows around the sloughs and a good supply of it can be obtained. In the northeast corner of the township, the hills are less steep and the country seems to assume a more level form, although it still keeps a high level. There is no timber nor minerals of any kind. Antelope seem to make their home among the hills. The soil is very light throughout. This country is only fit for ranching.—*A. F. Martin, D.L.S., 1903.*

Township 31.—This township was reached by travelling about 45 miles from Dundurn station on the Canadian Pacific Railway (Prince Albert branch) over a rolling prairie. The soil varies from sandy loam to clay loam rated mostly second-class, suitable for cultivation or grazing. The surface is an open rolling prairie and fresh water is found in scattered ponds and mashes, the latter generally having a good growth of hay. No quarries, fuel, minerals or water-power were found. Ducks were plentiful and an occasional antelope.—*E. J. Rainboth, D.L.S., 1903.*

Township 32.—This township was reached by travelling about 45 miles over rolling prairie from Dundurn station on the Canadian Pacific Railway (Prince Albert branch). The soil is a sandy loam and clay loam, with boulders, rated second, third

and fourth class, suitable on the whole for stock raising, rather than for cultivation. The surface is a rolling prairie. Fresh water is found in abundance in numerous ponds and hay marshes and a small lake is situated on sections 26, 27 and 34. No quarries, fuel, minerals or water-powers were found. Ducks were numerous and an occasional antelope.—*E. J. Rainboth, D.L.S., 1903.*

Township 33.—Dundurn is the nearest railway station, about 45 miles across prairie. The soil is principally hard clay, very dry, which would no doubt become friable with cultivation, and would make good wheat land. There are several alkaline flats which indicate that land must be carefully selected, as there is alkali in the ground even where it does not show at the surface. The surface is all rolling prairie, with a few stony ridges. There are good hay meadows on sections 31, 32, 20 and 29. There is no timber, no fuel, no stone quarries, no coal, no minerals, no streams, no permanent bodies of fresh water; the permanent lakes being all strongly alkaline. The early spring was cold and frosty and no game was seen.—*J. E. Woods, D.L.S., 1903.*

Township 34.—I reached this township by travelling across prairie from Dundurn a distance of about 40 miles. The soil is good clay, rather hard, but would improve with cultivation, and is suitable for wheat growing. The surface is all prairie, some of it rolling, with gently undulating stretches between the ridges. There is no timber, no hay land and no permanent bodies of water. There was some frost about the middle of May, but none after that date. There is no fuel, no coal, no quarries, no minerals. A few antelope were seen in the distance.—*J. E. Woods, D.L.S., 1903.*

Township 35.—The surface of this township is hilly and the majority of the hilltops are stony. The land is scarcely adapted for cultivation, but is excellent grazing land. Each section would probably afford enough land for cultivation to satisfy the requirements of home consumption, were mixed farming carried on. Fresh water ponds and sloughs are numerous, while some marshes would produce a good supply of hay. The soil in general is a clay loam, with subsoil of heavy clay. There are a few clumps of heavy poplar and willow scrub but no timber of utility. The nearest supply suitable for building would be about 12 miles north. No minerals of any description were seen nor any rock outcrop. The township is easily accessible from any direction, but no regularly travelled trails pass through it. Antelope and red deer were seen; the ponds were well stocked with ducks and plover. Foxes and muskrats are very numerous. There are some prairie wolves and badgers.—*Thos. Fawcett, D.T.S., 1903.*

Township 36.—This township is open, undulating prairie, considerably broken by alkaline lakes and sloughs, more especially in the southeast quarter. In other portions there are several hay marshes and ponds, generally containing fresh water. The country is better adapted for mixed farming than for any particular branch of agriculture. There is no timber of any description; the nearest supply will be about six miles from the north boundary. There are no running streams nor springs, but a sufficient supply of fresh water in the ponds and sloughs to suffice for ordinary seasons. There was little growth this season until after May 24, after which date it became very rapid, unimpeded by frosts or cold weather. Wood will be the cheapest fuel supply for some time to come. There are no indications of coal nor of any minerals of economic value. The game found is elk, red deer, antelope, coyotes, muskrat, badgers, &c. The fowl are ducks, grouse, plover and geese during some part of the year. There are no travelled roads passing through the township, but it is easy of access from any direction. The nearest point from which supplies can be obtained is Saskatoon, about 40 miles distant.—*Thos. Fawcett, D.T.S., 1903.*

Township 37.—I went to this township by way of the Canadian Pacific Railway from Toronto to Saskatoon, thence crossed the River Saskatchewan and travelled along easterly over a fairly well defined trail or road to the third meridian, intersecting it near the northern boundary of township No. 37, and continued east along this trail to the camp, from which the township was subdivided. This road from Saskatoon was in

good condition and quite sufficient for the requirements of the early settlers. The soil averages about four inches in depth of black loam, with subsoil generally of a sandy nature; the hills and ridges are covered with a shallower depth of loam, and are usually stony with a gravelly subsoil. There is sufficient depth of loam, but on account of the surface being broken by hills and ponds the country is not well adapted for ploughing or farming, and is better suited for ranching. The surface generally is prairie, but in places is covered with scrub and timber; probably 10 per cent of the area is scrubby or wooded. The timber is poplar and willow. Some of the poplar is large enough for building purposes. The northern portions of the township contain most of the timber. Small hay marshes abound generally. The water is all in the marshes, ponds and small lakes, and my party used it generally for drinking and did not experience any ill effects from alkali. Some of the ponds are quite deep, but would fluctuate with dry or wet seasons. There are no streams or running water. There is no water power. We did not have injurious frosts in the summer of 1903 during our survey. Poplar wood for fuel may be obtained in the northern parts of the township. No coal or lignite was seen. Limestone boulders are scattered over the surface and may be utilized for burning into lime. No fixed rock was seen or economic minerals. Many ducks, prairie chicken, antelope and some other kinds of deer are to be found.—*G. B. Abrey, D.L.S., 1903.*

Township 38.—I went to this township by way of the Canadian Pacific Railway from Toronto to Saskatoon, thence crossed the River Saskatchewan and travelled easterly along a road or trail, fairly well defined, to the third meridian, intersecting it near the southern boundary of township No. 38, and continued easterly along this trail until near the camp, from which the township was subdivided. This road from Saskatoon was in good condition and quite sufficient for the requirements of early settlers. The soil averages in depth about four inches of black loam; the subsoil is usually sandy. The tops of hills are generally covered with stones, and there are many gravelly ridges, and where these occur the loamy soil is shallow. There is a sufficient depth of soil to grow crops, but on account of the broken nature of the country the steep and high hills with ponds between, the township is not well adapted for farming and would be better suited for ranching purposes. The surface is generally prairie, but has timber and scrub growing in places; about a sixth of the whole may be wooded or scrubby. The timber is poplar and willow, and much of the poplar would be suitable for building settlers' houses. The timber is pretty well distributed in clumps over the township. Small hay marshes are everywhere, covering more of the shallow marshes and the margins of the deeper ones. The water is all contained in the marshes, ponds and small lakes. My party used it generally for drinking, and did not find any ill effects from alkali. Some of the ponds are quite deep, but would fluctuate with wet and dry seasons. There are no running streams or creeks. There are no water-powers to develop. We did not have any injurious summer frosts during the season of the survey. Poplar wood for fuel may be had pretty generally over the township. No coal or lignite was seen. Limestone boulders are scattered over the surface and could be used for burning into lime. No fixed rock was seen or any economic mineral. Many ducks, prairie chicken, antelope and some other kinds of deer are to be found.—*G. B. Abrey, D.L.S., 1903.*

Range 28.

Township 29.—This township is literally covered with knolls varying in height from twenty to eighty feet and with numerous sloughs and ponds. At the foot of almost every knoll lies a pond or a slough, all of which contain good water. A valley about 140 feet deep enters the township in section 32 and runs southeasterly across the township through sections 29, 30, 19, 20, 17, 16, 15, 9, 10, 4 and 5. Arm river, a

small stream with a very slow current runs in the centre of this valley. The water in this stream is very alkaline. This township is entirely devoid of timber of any kind. A fair supply of good hay can be gathered about the sloughs. There is no mineral of any kind. Antelope and ducks are very numerous. The soil is generally composed of a light coat of clay loam, with a subsoil of sand. It is rated third-class throughout.—*A. F. Martin, D.L.S., 1903.*

Township 30.—This Township is a complete network of knolls, sloughs and ponds to be met alternately at about every five chains in every direction. The knolls vary in height from twenty to seventy-five feet and assume all sorts of shapes and forms. Arm river takes its source from a large slough lying in a deep valley or ravine in section five and runs southeastward. This ravine branches out westward and northeastward at a short distance north of section 5. Water is good and fresh in all the sloughs and ponds but it is bitterly alkaline in Arm river. The soil throughout is sandy and is rated third class. Antelope and ducks are very numerous. An abundant and luxurious crop of bunch grass covers the whole township. Hay can be got in fair quantity about the sloughs. There is no timber nor minerals of any kind.—*A. F. Martin, D.L.S., 1903.*

Township 31.—This township was reached from Dundurn station on the Prince Albert branch of the Canadian Pacific Railway, from which it is separated by about 40 miles of rolling open prairie. The surface is hilly and rolling open prairie with numerous hay marshes, containing good fresh water. No wood, minerals or water-power. Soil is sandy loam and clay loam with patches of boulders on top of knolls and is rated second and third class. Fit for cultivation but more suitable for grazing. A small lake which was surveyed is situated on section 28.—*E. J. Rainboth, D.L.S., 1903.*

Township 32.—This township is an open rolling prairie with a good growth of grass and numerous fresh water marshes and sloughs. No wood. The soil is second class, being a clay loam. A small alkaline lake about 400 acres in extent, is situated in the northeast part of the township. The township is fit for cultivation or grazing. *E. J. Rainboth, D.L.S., 1903.*

Township 33.—This township is accessible by travelling across prairie from Dundurn. The soil is principally clay, with a few gravelly ridges suitable for wheat-growing. The surface is all rolling prairie devoid of timber and scrub. The hay land is all in small patches. The water is all alkaline, with the exception of a few small ponds that dry up in summer. I have seen no summer frosts; the indications are that the climate is dry in summer and little snow in winter. Fuel will have to be drawn from the railway. There are no quarries, no minerals and no game.—*J. E. Woods, D.L.S., 1903.*

Township 34.—This district is accessible across prairie from Dundurn over a hard undulating prairie. The soil is principally clay, with stony patches, suitable for wheat-growing. The surface is undulating prairie, devoid of timber or scrub. The hay land is in small patches. The permanent bodies of water are all alkaline. I saw no indications of summer frosts. The climate appears to be exceedingly dry, and probably very cold in winter. Fuel will have to be hauled from the railway. There are no quarries and no minerals. There were quite a number of ducks on the lakes.—*J. E. Woods, D.L.S., 1903.*

Township 35.—The surface throughout is undulating and hilly prairie, there being no timber with the exception of a few clumps of scrub poplar and willow in the northeast quarter of the township, but timber can be obtained about 10 miles north of the township. The soil is either a clay or sandy loam to a depth of from 6 to 12 inches, underlaid with clay subsoil. Some portions of the township are quite stony, especially on hills, where there are numerous small boulders seldom exceeding 12 inches in diameter. During the earlier summer months there is a plentiful supply of fresh water

in the numerous sloughs and ponds with which the surface is broken. There are three or four permanent lakes of small size which are alkaline. There are no travelled roads or trails through the township, nor any streams of running water. The land as to quality would be classed as second and third class. Hay marshes occur in nearly every section of the township. There are no indications of minerals of economic value. Antelope and red deer were seen; also ducks, geese, plover, grouse, foxes, muskrats and wolves.—*Thos. Fawcett, D.T.S., 1903.*

Township 36.—The surface of this township in general is rolling to hilly prairie, with many ponds of fresh water and some hay marshes. Many of the hills contain deposits of gravel and of imbedded boulders, which unfit these portions for anything except pasture land. The surface soil varies from a black sandy to a clay loam usually about 8 inches deep, with a clay subsoil. The hills are more in evidence across the north end and on the east side of the township than in the other portions. The more level sections would be suitable for cultivation, while the hilly ground would afford excellent grazing. There are no running streams in the locality, and no wood of any description in the township. The nearest supply of wood is located about 6 miles north. There are no indications of minerals of economic value. There are no travelled roads through the township, but it is easily reached from Saskatoon or from any direction. Antelope, jumping deer, foxes, wolves and muskrats were seen; also ducks and prairie chickens.—*Thos. Fawcett, D.T.S., 1903.*

Township 37.—I went to this work from Toronto to Saskatoon by way of the Canadian Pacific Railway, crossed over the river Saskatchewan and thence easterly along a road or trail to the third meridian, intersecting it near the northern boundary of the township, and thence to camp, from which the subdivision was made. This road was in fair condition and well enough defined to answer the requirements of early settlers. The soil is black loam about 4 inches in depth, with a sandy subsoil (on the ridges there is often considerable gravel) and the hills are covered with stones and boulders. There is sufficient soil for farming, but as the country is so broken with hills, hollows and marshes, it is better adapted for ranching purposes than for agriculture. The township is prairie, with no scrub. There is no timber whatever. Small marshes and ponds abound, the margins of which produce grasses for hay. The water is all contained in the small lakes, ponds and marshes. No alkaline effects were experienced by my party from drinking the water. Many of the ponds are quite deep with steep sloping shores; they would probably fluctuate in area and depth with seasons wet or dry. There are no streams or running waters. Frosts occurred during the season of survey in May. Poplar for fuel may be obtained from the northeast at a reasonable distance. No coal or lignite was observed. No economic minerals were seen. The limestone might be burned into lime. No fixed rock was observed. Many ducks and prairie chickens were seen. Antelopes and other kinds of deer roam over the country; foxes, badgers and other burrowing animals are common.—*G. B. Abrey, D.L.S., 1903.*

Township 38.—I proceeded to this work from Toronto to Saskatoon by way of the Canadian Pacific Railway thence crossed Saskatchewan river, and went easterly along a road or trail fairly well defined to the third meridian, intersecting it near the southern boundary of the said township and thence to camp from which the township was subdivided. This trail is sufficiently good for the needs of explorers and pioneer settlers. The soil is a black loam averaging about 5 inches in depth, with a sandy subsoil, with gravel on the ridges and loose stones and boulders on the hills. There is sufficient depth of the surface soil for farming, but because of the broken nature of the country, the hills and hollows with ponds, it is better suited for ranching than for wheat or general farming. The township is prairie, with scarcely any timber. Small hay marshes occur generally. The water is all contained in ponds and small lakes and no ill effects were experienced in drinking it by my party. Some of the ponds are quite

deep and steep on their shores; they would probably fluctuate in area and depth between dry and wet seasons. There are no streams or running waters. Frosts occurred in May while the survey was being made. Fuel of poplar wood may be had by going to the northward or eastward a short distance. No coal or lignite was seen. Limestone boulders are scattered over the surface on the hills and could be used for burning into lime. No economic minerals were observed. No fixed rock was visible. Many ducks, prairie chickens, antelope and other deer were seen.—*G. B. Abrey, D.L.S., 1903.*

Range 29.

Township 29.—This township can be better described as a rough hilly country, broken by numerous ponds and sloughs and knolls, varying in height from 25 to 75 feet, and lying very close to one another. These knolls look as if they had been planted indiscriminately and let to grow in all sorts of fantastic forms. They represent the Rocky mountains in miniature. There is good fresh water in all the ponds and sloughs. Some of the ponds in the form of an artificial fountain, measuring about 50 links in diameter, and containing good, pure and fresh water, are to be found on the very top of high knolls. At a height of 100 feet, the country looks like a choppy sea. A luxurious crop of sweet bunch grass grows all over the country. Between the hills the soil is of a fair quality, but the country is more adapted to ranching. Good hay is to be found in good supply around the numerous sloughs lying between the hills. There is no timber (not even wood for fuel) to be found in this township. There is no mineral of any kind nor any quarry. This country seems to be the home of the antelope, which are seen frequently in large numbers.—*A. F. Martin, D.L.S., 1903.*

Township 30.—This fractional township is composed of high knolls of all kinds of shapes and forms, and varying in height from 25 to 75 feet. The northwest corner of this township especially is but a network of knolls and sloughs. These knolls lie so close to one another that it is impossible at some places to obtain a proper base for triangulation. Numerous sloughs are encountered between the hills and ponds are to be found in some places at the very summit of a high knoll. The country is very rough and broken. The water is generally good in all ponds and sloughs. Two lakes of considerable size lie on sections 12, 13 and 14. They come within fifty links of one another. Water in the two lakes is very alkaline. On the south shore of lake No. 2 and at the southeast corner of said lake a small quantity of soft maple and poplar can be found. This is the only timber that can be found within the township, and it can only be used for fuel. There are no minerals. Hay can be got in small quantity only about the sloughs. There is good pasturage throughout. The township is only adapted for ranching.—*A. F. Martin, D.L.S., 1903.*

Township 31.—The surface is rolling and hilly, all open prairie with an excellent growth of grass. Fresh water is abundant in the numerous sloughs. The soil is generally a clay loam, but very stony, rated second and third class, and is suitable only for grazing. No wood.—*E. J. Rainboth, D.L.S., 1903.*

Township 32.—The surface is rolling, open prairie, with good grass and hay around the numerous fresh water sloughs or marshes. No wood, minerals or water-power. Soil is sandy loam and clay loam, rated mostly second class. The township is fit for cultivation and grazing. It is easily reached from Dundurn station on the Canadian Pacific Railway (Prince Albert branch), distance about 35 miles across rolling country, without any trail.—*E. J. Rainboth, D.L.S., 1903.*

Township 33.—This township is situated about 30 miles across prairie from Dundurn. The soil is clay and well adapted to farming. The surface is high rolling prairie. There are no hay meadows of any extent. No timber, no permanent bodies of water, no fuel, no coal, no minerals, no stone quarries and no game.—*J. E. Woods, D.L.S., 1903.*

TOWNSHIPS WEST OF THE SECOND MERIDIAN—RANGE 29.

Township 37.—The township was reached by a trail running easterly from Saskatoon on the Canadian Pacific Railway. This trail intersects near the line between townships 37 and 38 and in ordinary seasons would be a fairly passable road. The soil is black loam of fair depth with sandy subsoil, gravelly and stony on the hills. The country is much broken with hills, sloughs and marshes and would be better suited for ranching than for wheat growing or general farming. The country is prairie with no timber. Some scrub is found on edges of sloughs and hill slopes. Hay may be cut in the marshes and most kinds of grasses usual to the country are to be found. My party did not suffer from using the water found everywhere. No running water or streams were seen and during dry seasons a good deal of the water might evaporate, but there was much wet land and many sloughs while the survey was being made. Frosts occurred at night during May. Poplar wood for fuel can be obtained from the north at no great distance. No coal or lignite was seen. No fixed rock was observed, but stones for lime or building purposes may be picked up from the surface. No minerals of economic value were seen. Ducks, prairie chicken, antelope and some deer are to be found.—*G. B. Abrey, D.L.S., 1903.*

Township 38.—The township was reached by a trail running easterly from Saskatoon on the Canadian Pacific Railway. This trail intersects near the southwest corner of the township and would in ordinary seasons be a fairly good road. The soil is black loam of a few inches in depth with a sandy subsoil with gravel and stones on the ridges. The country is much broken with hills, sloughs and marshes and is better suited for ranching than for general farming. The surface is prairie with no timber. Some scrub shows on the edges of sloughs and hill slopes occasionally. Hay may be made in the marshes and most kinds of grasses usual to prairies grow here. None of my party suffered from using the water found everywhere. No running streams exist, and during dry seasons probably much of the water would dry up. During the time of the survey much of the country was wet and covered by water. Frosts were general during May. Poplar for fuel may be had a short distance northerly. No coal or lignite was seen. I saw no fixed rock, but stones suitable for lime or buildings may be picked up on the surface. No minerals of economic value were seen. Ducks, prairie chicken, antelopes and some other deer were seen.—*G. B. Abrey, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN.

Range 1.

Township 27.—The soil consists of a light black loam with a subsoil of sand. Water can be got by digging, but good water is scarce. A small quantity of hay can be gathered in and about the sloughs. There is no timber nor wood of any kind. There is no sign of any minerals. The Prince Albert branch of the Canadian Pacific Railway crosses this township in a northwesterly direction from section 1. The land throughout this township requires a great deal of moisture.—*A. F. Martin, D.L.S., 1903.*

Township 28.—The soil consists of a light coat of sandy loam with a subsoil of sand. The northeast corner of the township is rather broken with knolls, being the beginning of the ranges of knolls to the north. Good water is scarce, the surface water even is alkaline. There is no timber of any kind and hay is also scarce. There is no indication of minerals of any kind. Weather at the time of the survey was rather stormy and cloudy.—*A. F. Martin, D.L.S., 1903.*

Township 29.—The soil in this township where it is not stony or gravelly, is clay loam, with occasional stretches of sand. The land is all open prairie with occasional isolated clumps of alder and willow. It is almost all knolly but could scarcely be

termed hilly. Small sloughs are numerous but no large ones. There are no hay meadows but a small strip of hay is to be found around nearly all the sloughs. They are all full of grass but it is of a coarse variety and cannot be cut owing to the depth of the water. The land is too rough, knolly and stony to be suitable for farming but would make a good summer ranch. A moderate herd of cattle might also be maintained during the winter, if the available hay could be supplemented by roots. The most direct route to the township is from Bonnington station on the Regina and Prince Albert Railway. There is no timber, consequently fuel will have to be imported. There are no streams but good water can be had at a moderate depth by digging wells. I experienced no summer frosts but the weather was cold, there being some very high winds and cold rains. I am of the opinion that the season was an exceptionally cold one. Antelope were numerous, also muskrats, foxes and ducks. There are no minerals nor stone quarries.—*James Dickson, D.L.S., 1903.*

Township 30.—The eastern part of this township may be described as knolly, although none of the knolls are high. The soil, where it is not stony, is chiefly clay loam. Marshes are very numerous but small. Good hay is scarce and is confined to the margins of the marshes and ponds. A few quarter sections in the western part of the township consist of fairly good land. Some farms might be located here and the remainder of the township used for ranching purposes, as the pasture is good. The water is also good and abundant. The township may be reached from Bonnington station, on the Regina and Prince Albert Railway. From this point a good wagon trail into the township may be found without difficulty. There is no timber, only isolated alder or willow bushes, consequently fuel will require to be imported. There are no streams but the water in the ponds and sloughs is all good. There was no frost during my season's work but high cold wind almost continuously. The rains also were all cold. Antelope, muskrats, skunks, foxes, badgers and ducks were numerous. There are no stone quarries nor minerals.—*James Dickson, D.L.S., 1903.*

Township 31.—This is a poor township, but a strip of fairly good land, embracing the two centre ranges of sections extends all across it. The land is knolly, but the soil is a good clay loam. The other parts are hilly, rough and largely stony. Marshes are numerous. In the report of the outlines, there are said to be 'numerous lakes, some of which are not less than one-half mile square.' This is certainly erroneous. I took particular pains to ascertain the sizes. The largest lake is on the east meridian, at the intersection of the southeast corner of section 23, and the northeast corner of section 14, and it has not an area of more than 12 or 15 acres. Almost all the others are simply sloughs, the water in most cases being completely covered by long coarse grass. Numerous small lakes are shown along the west boundary. Not one of these is other than a trifling little slough of very coarse hay. That on section 19 is a small, nearly dry slough about six acres in area, lying ten chains south of the chord. At that point, the line is completely dry hard soil. There are no hay meadows. The land is all open prairie without timber. The climate is good and I experienced no summer frosts. There are no streams, but the water in the sloughs is nearly all good. The township is easily accessible from Hanley station on the Regina and Prince Albert Railway. Antelope and muskrats are numerous. There are no stone quarries nor minerals.—*James Dickson, D.L.S., 1903.*

Township 32.—The southern part of this township is rough and knolly, with numerous small marshes. The soil is stony and gravelly, adapted for the most part only for pasture lands. The two northern tiers of sections slope gently to the north, and the soil is a rich clay loam well adapted for farming. The land is all open prairie. There are no hay meadows nor any timber. No running streams are to be found, but the water in the sloughs is good. I think, also, that water may be found in abundance at a moderate depth in almost any part of the township. It is readily accessible from Dundurn station on the Regina and Prince Albert Railway, no road making being

necessary. Antelope, muskrats and small game are abundant. There are no stone quarries nor minerals.—*James Dickson, D.L.S., 1903.*

Township 38.—This township was reached by a trail running easterly from Saskatoon on the Canadian Pacific Railway, and intersects near the southeasterly corner thereof. This road would be a fairly good one in dry seasons. The surface soil is black loam of a few inches in depth. Below is sandy and on the ridges it is gravelly and stony. The country is much broken with hills and marshes, and is not well adapted to general farming, but is available for ranching. The country is prairie, with no timber growing. Some scrub grows around some of the marshes and hill slopes. Hay may be made in the marshes and most kinds of grasses usual to prairies are found here. The water found everywhere did not cause inconvenience to my party in any way. There are no running streams, and in dry seasons probably much of the water would dry up. There are no water-powers. Frosts were general during the season of survey (May 11 to 13). Poplar wood for fuel may be obtained a short distance to the north. No coal or lignite was found. No fixed rock was found, but stones and boulders suitable for lime or buildings can be picked up. No minerals of economic value were seen. Ducks, prairie chicken, deer and antelope are to be seen.—*G. B. Abrey, D.L.S., 1903.*

Range 2.

Township 29.—The Regina and Prince Albert Railway passes through the southwest corner of the township, entering it at the southeast corner of section 4 and leaving it in the southwest quarter of section 30. The wagon trail leading from Regina to Saskatoon also runs parallel to the railway at a few chains distance on the east side. Bonnington station is in the northwest quarter of section 19. The soil is mostly clay loam, but in some parts is gravelly and stony. The sections traversed by the railroad, also those lying west of it, are good farming land, but the remainder is rough, broken and knolly, suitable only for pasturage. There are a considerable number of sloughs, but none of them large, and although they are all surrounded by narrow margins of grass, there is nothing which could be called a hay meadow. There is no timber of any description, with the exception of an occasional clump of alder or willow, nor is there any running water excepting two small streams, one of which crosses the west boundary on section 7, the other on section 19. Each stream is absorbed in a small slough. There was no frost worth speaking of during my season's work. The weather was cold and the winds were very high. I do not think it was a fair specimen of the average season. The water in all the sloughs which I tried was good, and can be had anywhere in abundance by digging to a moderate depth. Antelope were plentiful; also muskrats and ducks, and a few foxes, skunks and badgers. Prairie chicken were scarce. Firewood will have to be imported. I had to rely exclusively upon old railroad ties for fuel in the whole eight townships I surveyed there. There are no minerals nor stone quarries.—*James Dickson, D.L.S., 1903.*

Township 30.—The township is hilly in the west, also in the east, although none of the elevations are high. In these parts the land is stony and gravelly, not adapted for agriculture. The land is all open prairie, there being no timber whatever, only sufficient alder and willow bushes to serve as landmarks. The marshes are small and numerous, but there are no hay meadows. The soil is for the most part clay loam, slightly alkaline in sections 33 and 34. There is some good farming land in the interior of the township. Cygnet lake, on the northern boundary of sections 33 and 34, is alkaline. With that exception and a very few others, the water is good, but there are no running streams. Fuel will require to be imported. A good road may be found from Bonnington station without any outlay. Antelope, muskrats, foxes, skunks, badgers and ducks are numerous. There are no minerals nor stone quarries.—*James Dickson, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN—RANGE 2.

Township 31.—Both the eastern and western portions of this township are knolly, and in many parts stony; where that is not the case the soil is clay or loam. Though little of it is adaptable for agriculture, it would make an excellent ranche. The marshes are numerous, but there are no hay meadows. There are several small ponds, and almost all the water is good, excepting Cygnet lake and the small lake on sections 4 and 5. The water in both these lakes is bad. There are no streams. The land is all open prairie, and as there is no timber, fuel will require to be imported. I experienced no summer frost, and should consider the climate healthful, although the season was exceptionally cold and windy. The same varieties of game as in the adjacent townships are found here in abundance. There are no stone quarries nor minerals. The most convenient route into the township is from Hanley station on the Regina Railway. No labour at all will be necessary to make a good wagon road.—*James Dickson, D.L.S., 1903.*

Township 32.—A large percentage of this township consists of good land, well adapted for farming. The sections north of the north chord slope gently towards the north. South of that line it is knolly, but the soil is almost all good, consisting largely of clay loam. Small marshes and sloughs are numerous, around nearly all of which a considerable quantity of hay may be cut, but nowhere is there what might be termed a hay meadow. I found two or three dry water courses in which a flow of water can only be possible during a brief period in the spring, as their beds are all filled up with grass. Abundance of good water may be procured by digging. The most direct route into the township is from Dundurn station on the Regina and Prince Albert Railway, from which point there is a good wagon trail. The land is all open prairie, with no timber and no firewood. The climate, I should say, is good. I saw no indications of summer frost. In the surveyor's report of the outlines, sections 32 and 33 are reported as being broken by large ponds. This is erroneous, there being none there now. Antelope and other small game are numerous. There are no stone quarries nor minerals.—*James Dickson, D.L.S., 1903.*

Range 4.

Township 28.—This township is easy of access, being about 10 miles southwesterly from Bonnington, a station on the Prince Albert branch of the Canadian Pacific Railway. There is a fair trail for the greater part of the way, and as the prairie was dry, we had no difficulty in getting there. The soil is good, being chiefly clay loam, and is well adapted for wheat-growing and also other kinds of grain and roots. There is not a whole section in the township but could be cultivated to good advantage. The surface is gently undulating and is open prairie, none of which is flat or wet. No timber of any kind is to be found on any part of the township. There are no hay marshes or meadows. The only water to be found is in a few ponds that are not deep or large; the water in them is quite fresh and good. No alkali to be seen or found. The supply of water is not large, and in a dry season would be scarce. There are no streams or springs in any part of the township, and there is no water power. The climate seems to be favourable, and there does not seem to be any danger of summer frosts any more than in the surrounding country. The grain would ripen early on account of the dry nature of the soil. No fuel of any kind can be obtained in any part of the township, there being no timber nor are there any surface indications of coal or lignite. Minerals of any kind are entirely wanting; none to be seen anywhere. The only game is an occasional prairie chicken and an antelope. There are no ducks as there are no large ponds for them to go to. Taking the township as a whole, it may be rated as first class, and is well adapted for settlement, and it is reasonably convenient to railway and market. I have no doubt but in the near future this township will be all taken up and settled on.—*James Warren, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN.

Range 5.

Township 28.—This township is easy of access from Bonnington station, on the Prince Albert branch of the Canadian Pacific Railway, it being about 20 miles south westerly from that station. This is an open prairie township, gently undulating, except in the northwest part where it is more hilly. The soil is chiefly clay loam and is well adapted for growing wheat and other grains, also roots. There is no timber or scrub on any part of the township, the surface being all open prairie. There are no hay meadows, the grass being chiefly short and not suitable for hay. Water is only obtained in ponds or sloughs of which there are a few. The water is good, no alkali being found. No streams occur and of course no water power of any kind. The climate would be favourable for the growing of grain and not much likelihood of summer frosts as the soil is dry. Fuel is scarce, none of any kind to be found on the township, nor are there any traces of coal or lignite. Stone is scarce, there being only a few scattered ones over the prairie and no fixed rocks or quarries. No minerals were found in any part of the township. Game of all kinds is scarce, only a few antelope and prairie chickens were seen. This may be rated as a first class township, as most of the soil is very good, except in the northwest part where it is harder and gravelly. This township is quite available for settlement.—*James Warren, D.L.S., 1903.*

Township 52 (north outline).—To the north of the base line in this range lies a narrow lake, several miles long, called Stump lake, so named because of the many stumps found on its shores. The shores had been flooded which killed nearly all the spruce with which the land had been timbered. The western extremity of this lake lies in section 35 and in part of section 36. The north boundary of section 31 intersects the northern extremity of a lake one mile long and about a quarter of a mile wide. Near the northeast corner of section 32 there is another but smaller lake, and the western boundary of a timber limit, which includes the whole of sections 33, 34, 35 and 36 in this range. The country is rolling with many lakes and large marshes, surrounding forests where spruce of large diameter can still be found, though a large part of it has been fire killed. The soil is sandy and black loam with gravelly subsoil. —*A. Saint Cyr, D.L.S., 1903.*

Range 6.

Township 28.—This township is rather hilly and somewhat broken and the general quality of the soil is not very good, as it is in many places hard clay or gravelly and not well adapted for cultivation. The surface is open prairie with no timber of any kind growing on it. This will make fuel very scarce, there being no wood growing. There is no trace of coal or lignite to be seen. So fuel for use would have to be got from a distance, as there is no wood growing near the township. The valley of the Saskatchewan is about 6 miles to the west, where some wood could perhaps be obtained. There are no hay marshes or meadows in the township which would make feed somewhat scarce. There are a good many stones in some parts of the township, but no fixed rock is to be seen. Nor is there any trace of minerals. The township being dry there are no streams or springs anywhere on it and consequently no water-power or falls, the present supply being in the ponds or sloughs. From the appearance of the surface, water could be had by digging. The climate would be favourable to cultivation when the soil would admit of it and would also be comparatively free from summer frosts. Game of all kinds is scarce, there being only a few antelope and praire chicken to be seen. This township is situated about 20 miles from the Prince Albert branch of the Canadian Pacific Railway and from Hanley station, where a market can be had for produce.—*James Warren, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN—RANGE 6.

Township 29.—This township though it has some inferior land may be rated as first class, as the soil is generally good and well adapted for the growing of wheat, other grains and roots. It is favourably situated, being about 20 miles from a thriving little village and railway station, Hanley, which would be an easy market for the settlers, when the grain would be ready for marketing. The surface is undulating and is all open prairie, there being no timber of any kind growing on the township. There are no hay marshes of any extent, so that feed would be rather scarce for wintering stock. There is not much water, being only in small ponds or sloughs, but in a dry season water would be somewhat scarce. I think that by digging water can be had at reasonable depth. There are no streams and consequently no water-powers or falls are to be found. Judging from the surrounding country the climate is good and would not be subject to summer frosts. The grain would ripen early as the soil is dry. Fuel is entirely wanting in the township, as there is no timber and no appearance of coal or lignite in any part of the township. There is no fixed rock of any kind; the only stone being a few scattered stones over the prairie which could be used for building purposes. Neither are there any traces of minerals of any kind. Game is scarce, the only animals we saw were a few antelope and a few prairie chickens. There are no ducks or wild geese, as there are no ponds or lakes. Taking the township as a whole it is one that is well adapted to settlement.—*James Warren, D.L.S., 1903.*

Township 30.—This township is situated about 15 miles southwesterly from Hanley station on the Prince Albert branch of the Canadian Pacific Railway, to which there is a good trail. The general surface is gently undulating, being all open prairie. The soil is well adapted for wheat growing, also oats and other grains and roots as the soil is chiefly clay loam. There is no timber of any kind growing on the township nor any scrub or willow. There is a small hay marsh or meadow on sections 7, 18 and 19 on which some hay has been cut by ranchers for feeding their cattle. This is the only hay meadow on the township. The water generally is good, but there is none but what is found in ponds or the sloughs, there being no running stream of any kind. The climate judging from the surroundings is good and would be comparatively free from summer frosts as the soil is generally dry. Owing to the absence of timber there is no fuel on any part of the township and there are no indications of coal or lignite. There is no fixed rock and only a few stones on the prairie; neither is there any trace of minerals of any kind. Game is very scarce, an occasional antelope or a few prairie chicken being the only game to be seen. Taking this township as a whole, except the southeasterly part, it is well adapted for settlement and would be rated as a first class township and easy of access.—*James Warren, D.L.S., 1903.*

Township 46.—This township can be reached by a good trail from Duck lake to Aldina P. O. The soil is first class, mostly level prairie. in places undulating or slightly rolling. There are some good hay marshes in the northern part and scattered bluffs of poplar. Much of the land is taken up and some small improvements made.—*Walter Beatty, D.L.S., 1903.*

Township 47.—This township is reached by trails from the Indian reserves, is fairly good land with many bluffs of poplar and some spruce of fair quality.—*Walter Beatty, D.L.S., 1903.*

Township 52.—(North outline).—In this range are found many lakes and large marshes separated by low land covered with a light growth of poplar, and scrub growing over bad windfalls. Nearly two-thirds of section 35 lies within the boundaries of a large lake. A belt of spruce covers section 36 and extends southward for a distance of two miles. The soil is a black and sandy loam from seven inches to twelve inches in depth with a clay subsoil.—*A. Saint Cyr, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN.

Range 7.

Township 29.—This is a fairly good township, though some of the soil is somewhat hard, yet in a fairly moist season could be cultivated to advantage. It is fairly well situated for railway and market, as the station Hanley, on the Prince Albert branch, is only about 25 miles away, and there is a good trail for a great part of the way. The surface is gently undulating and is all open prairie, none of it being scrubby or bushy. There is no timber of any kind on the township; all being open prairie. There are no hay marshes anywhere in the township. Water is scarce, the only supply at present being a few ponds in which there is some water, but it is good, there being no trace of alkali. I think that there would not be any trouble in getting a good supply of water by digging. There are no streams on any part of the township, and consequently no water-power. The general indications are that the climate is good, and not more liable to summer frosts than the general surrounding country. The soil being dry would enable the grain crops to ripen early. There is no fuel in the township, as there is no timber, and there are no indications of any coal or lignite to be seen. The supply of fuel would have to come from a great distance. There is no stone, only a few loose stones on the prairie that could be used for building purposes, and there are no indications of minerals of any kind. Game is scarce, as we only saw an occasional antelope and a few prairie chickens. No ducks or wild geese were to be seen, as there are no large ponds or lakes for them to go to. Taking this township as a whole, it is one that is available for settlement. The Saskatchewan is only about 3 or 4 miles from the western boundary of the township, and may yet be used as an outlet for the settlers, and as there are quite a number of fish in the river settlers could take advantage of them.—*James Warren, D.L.S., 1903.*

Township 30.—This township as a whole is a very good one, there not being much second class land it. The soil is clay or sandy loam of good depth and quality, except in the northern part where it is somewhat light or sandy. The surface is gently undulating, and is all open prairie, there being no timber or scrub on any part of it. There is a good hay meadow or marsh in parts of sections 12, 13 and 24, on which a good quantity of hay has been cut by the ranchers wintering cattle and horses nearby. Water is not abundant, but what is to be found is good, there being no alkali in it. I think that water can be easily obtained by digging a few feet. There are no streams on any part of this township, and consequently there are no water-powers or falls. The climate, judging from the surroundings, is good, and would not be any more subject to summer frosts than the country around. There is no fuel of any kind on the township, as it is entirely prairie, nor are there any traces of coal or lignite. Fuel would have to be got outside of the township. There may be some in the valley of the Saskatchewan, which is only a short distance to the west. There are no stone quarries nor fixed rock of any kind, nor are there any minerals. Game is scarce, there only being an occasional prairie chicken or an antelope to be seen. This township is only about 20 miles from Hanley station on the Prince Albert branch of the Canadian Pacific Railway, which is a lively and growing village, and will no doubt be the market for this and other townships. Taking the township as a whole, it may be rated as a very good one, that is quite available for settling on. The surroundings are favourable in every respect, both for soil and climate.—*James Warren, D.L.S., 1903.*

Township 52.—(North outline.)—East of Big river the country presents quite a different appearance from that on the west. Through section 31 the ground rises by gentle undulations to a plateau extending eastward across the entire range. Most of the timber, which is poplar, has been recently killed by fires, but is still standing. The eastern part of section 33 and a narrow strip of section 34 are covered by Lizard lake, which extends north of the line for many miles. It is a country of marshes and bogs,

where an unlimited supply of hay can be had. Where the land is high it is covered with bad windfalls. The soil is a black and sandy loam with a clay subsoil.—*A. Saint Cyr, D.L.S., 1903.*

Range 8.

Township 41.—This township is easily reached by a trail from Rosthern to the ferry over the Saskatchewan about twenty-five miles west of that village, thence by trail passing through the southeast part of the township, and going on to the ferry at the elbow or big bend of the river, also to Battleford. The soil is, in most places, a brown loam with sandy subsoil. The township is fairly well adapted for agricultural purposes, excepting a small portion in the southeast part, which is too stony. The surface is fairly level, but in some places slightly rolling. There are a few small lakes in the township, the water of which is slightly alkaline. There are small patches of poplar and willow brush, but very little poplar timber suitable for fuel or fence poles. There are a few small areas of hay land.—*Walter Beatty, D.L.S., 1903.*

Township 42.—This township can be reached from Carlton by the Battleford-Carlton trail, which passes about six and one-half miles east of the southeast corner of the above township. There are no trails within the township and no other way of reaching this township except by making your own trail from the above mentioned well travelled trail. The surface is rolling prairie covered by numerous patches of brush, poplar brush and willows, broken by numerous sloughs, willow sloughs and small lakes. There are two large lakes called Rabbit lake and Redberry lake, the first covering parts of sections 10, 11, 12, 13, 14 and 15 ; the second covering the greatest part of the northwest quarter of the township. There is no timber of a size large enough to be used for building purposes, it is mostly all brush and willows. There are no hay marshes and the water in the large lakes is alkaline and slightly alkaline in smaller lakes and sloughs. The climate is good with no indications of summer frost. The soil is mostly second class except in the southeast part of the township where it is first class. The wood being brush and poplar, is not of much value for fuel. There is no water-power, no stone quarries and no minerals within this township. There was no game at time of survey. This township may be described as fairly good for agricultural purposes.—*Walter Beatty, D.L.S., 1903.*

Township 43.—This township can be reached by crossing the Saskatchewan at Carlton, then following the Carlton and Fort Pitt trail, which passes at a distance of a quarter of a mile to a mile and a half from the north boundary. This trail is in good condition. The soil is mostly second class and sandy, well suited for grazing purposes, but some good agricultural land is also found, especially in the southeast portion of this township. The surface is broken by numerous sloughs, ponds and small lakes. Redberry lake covers the greatest part of the southwest portion of the township. The timber is in great part poplar, of small size and willow brush, more suitable for fuel than for building. There are no hay marshes and no water-powers. The water in Redberry lake is good, but in sloughs and ponds is slightly alkaline. The climate is good and early summer frost is unknown in this region. There are no stone quarries and no minerals. The timber could be used for fuel and for fencing, but in a very limited way. This township, which is partly covered by a large lake, could accommodate a limited number of settlers and the rest could be used for grazing purposes.—*Walter Beatty, D.L.S., 1903.*

Township 44.—This township can be reached by crossing the Saskatchewan at Carlton and then following the Carlton and Fort Pitt trail which crosses the south portion of the township from east to west. The soil is rated first and second class and consists in the main of a brown loam well suited for agricultural purposes. Some stone and gravel soil is also met in the northwest part of the township which part is

also very hilly. This township is occupied by Doukhobors, and large tracts are cultivated. There is a Doukhobor village in sections 35 and 26, and a small mill for crushing grain run by water power on section 27. There are some good hay meadows, especially in sections 24 and 25. There is a large lake called Blaine lake covering parts of sections 11, 12, 13, 14 and 24. The water in this lake is alkaline and of the same quality in the other small lakes and numerous ponds and sloughs. The surface of this township is covered with a great many clumps of poplar and willow brush, but no timber of a size suitable for building purposes is found. There are no stone quarries, no minerals and no game excepting birds. In conclusion I may say that this township is suitable for settlement, except in the northwest portion, which is rather stony and sandy.—*Walter Beatty, D.L.S., 1903.*

Township 45.—This township can be reached by crossing the Saskatchewan at Carlton and then following the north trail from Carlton to Fort Pitt which crosses the south boundary of this township in several places. The soil in this township is a brown sandy loam, but the soil in the western part is very stony and sandy, suitable only for grazing purposes. The surface is rolling except in the southeast and northwest portions where it becomes very hilly and broken. The surface is covered with a thick growth of poplar and willow brush, but no large timber was met except some which is burnt and fallen. The surface is broken by numerous lakes, ponds and sloughs; the water is slightly alkaline in the smaller ones. The water found in creeks in sections 14 and 23 is good and fresh. There is no water-power, no stone quarries, no minerals, and only small game in this township. The climate is good.—*Walter Beatty, D.L.S., 1903.*

Township 52.—(North outline).—Through nearly all of this range the line lies within Indian reserve No. 118. From the northeast corner of township 52, range 9, the country rises gently towards the east for a distance of half a mile, when it again becomes hilly and stony, and is covered with willow scrub and bluffs of small poplar. Part of section 35 and the western half of section 36 are covered by a large bog extending along the western bank of Big river which here flows through a wide valley of hay marshes. Big river crosses the base line at a point five chains west of the quarter section on north of section 36. The eastern boundary of the Indian reserve intersects the line at a point eleven and seventy-six hundredths chains east of the quarter section on the north of section 36. A short distance east of this boundary is a road leading to Stony lake, a district also included in the reservation. From the many large hay marshes in the vicinity of Big river the Indians procure the necessary fodder for their horses during the winter season. At a point ten chains west of the quarter section post on the north boundary of section 33, the wagon road from Carlton to Green lake crosses the line while three-quarters of a mile farther east a branch road, better travelled than the main trail, crosses the north boundary of section 34. The soil is a sandy or black loam with a subsoil of clay and stones or gravel.—*A. Saint Cyr, D.L.S., 1903.*

Range 9.

Township 41.—This township can be reached by a good trail from Saskatoon to the ferry over the Saskatchewan at the big bend, thence by a good trail made by settlers and land hunters into the township. The soil is good and well adapted to agricultural purposes. The water in ponds and sloughs is slightly alkaline. There are no large hay meadows but many of small area. There are no streams or water-powers in the township. The surface is slightly rolling with small patches of poplar and willow brush, the greater part of the township being open prairie. There is no building timber and very little poplar suitable for fencing. There are no stone quarries or minerals in the township.—*Walter Beatty, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN—RANGE 9.

Township 42.—This township can be reached from Carlton by the Battleford and Carlton trail which passes about twelve and one-half miles from the southeast corner of the township or by crossing the Saskatchewan at Carlton and following the Fort Pitt and Carlton trail which passes on the north side of Redberry lake in township 43, range 9, and thence across country to township 42. This last trail is about six miles from the north boundary of township 42. The soil is for the greater part second class except in section 4, where it it first class ; it is fairly good agricultural land. The surface is covered with numerous patches of poplar, willows, poplar brush, broken by sloughs, ponds and small lakes. Some large poplar 10 inches in diameter was crossed in section 32, and in a gully in section 29 some fairly large poplar was also crossed. The northeast portion of this township is fairly well covered with small poplar suitable for fuel and fencing. There are no hay marshes, the water in Redberry lake is alkaline but in the large creek flowing into the southwest part of the lake the water is fairly good. A good water-power could be developed from this creek, if properly dammed. The climate is good with no indication of summer frost. There are no stone quarries and no minerals in this township. Only small game was seen at time of survey.—*Walter Beatty, D.L.S., 1903.*

Township 43.—This township can be reached by crossing the Saskatchewan at Carlton, then following the Carlton and Fort Pitt trail, which enters the township in the north boundary of section 36 and crosses the northwest part of the township. The soil is sandy and in places stony. The surface is rolling, and broken by numerous lakes, ponds and sloughs ; the land is covered by numerous patches of poplar and willow brush, with a few clumps of heavy timber suitable for building purposes. There are also a few small patches of hay. The water in Redberry lake is good and fresh, but in the smaller lakes and sloughs is slightly alkaline. There is no water-power nor stone quarries nor minerals, and only small game was seen at the time of survey. This township is well suited for grazing purposes, but it is too sandy for agricultural purposes.—*Walter Beatty, D.L.S., 1903.*

Township 44.—This township can be reached from Carlton by the Carlton and Fort Pitt trail after crossing the Saskatchewan at Carlton. This trail crosses the township near the southeast corner. The soil is very sandy and stony in places of second and third class. The surface is rolling, broken by numerous ponds, sloughs and lakes. The country is covered with numerous clumps of poplar brush and dead poplar. The timber in all cases is of small size and would be useful only for fuel and fencing purposes. The water in the larger lakes is good and fresh, but in the sloughs and small lakes and ponds it is slightly alkaline. There are no water-powers, no stone quarries and no minerals. Only small game was seen at time of survey. This township is well suited for grazing, but too sandy for agricultural purposes. The climate is good.—*Walter Beatty, D.L.S., 1903.*

Township 45.—This township can be reached by a good trail from Duck lake, which passes across the township, entering on the east side in section 1, bearing northwest and crossing section 18 on the west side of the township. The soil is generally light, and in many parts stony and not suitable for agricultural purposes. There are several lakes in the township, the waters of which are slightly alkaline, but the water in a stream 20 links wide which passes through the township on the eastern side from north to south is fresh. The greater part of the township is covered with poplar bush and brush. The surface is rolling throughout, with several high hills. There are no water-powers or minerals in the township, and I saw no game excepting birds.—*David Beatty, D.L.S., 1903.*

Township 52.—(North outline.)—Across most of this range the country is very hilly and stony, and is broken by numerous lakes, large tamarack swamps and bogs. Nearly all of section 32 is covered by a lake, which is surrounded by extensive bogs. West of Bog river, which crosses the base line at a point 35 chains east of the north-

east corner of section 35, the country is hilly. The river here has a width of about one chain, and on October 3 had an average depth of about 8 feet. The current is swift, and is often impeded by boulders. The hills on the western side rise to a height of 125 feet, often with a steep ascent from the water's edge. On the east of the river the country is level prairie. The western boundary of the Indian reserve No. 118 intersects the base line at a point eleven and twenty-one hundredths chains east of the northeast corner of section 35. The timber is tamarack, 10 inches in diameter, with poplar and scrub. The soil is a black or sandy loam to a depth of four to six inches, with a sub-soil of clay and stones.—*A. Saint-Cyr, D.L.S., 1903.*

Range 10.

Township 35.—From Saskatoon this township is reached by a trail running due west from that place for 14 miles, thence southwesterly to the line between townships 35 and 36, which it follows to the line between ranges 9 and 10. The soil is chiefly a sandy loam or sandy clay overlying sand and at a considerable depth, clay making it eminently adapted for the growing of all kinds of heavy cereals. The whole surface is open prairie, rolling or undulating, excepting where cut by Eaglehills creek. Scrub is met with in the valley of that creek, but of timber there is none of any size. A few small stunted ash and poplar are found near the water, but they are not fit either for building or fuel. From the appearance of the old grass on the prairie, I do not think that it is suitable for hay, and as the township is very dry, there are no hay marshes. The water in the sloughs is as a rule fresh and sweet. In Eaglehills creek it is slightly alkaline, which can also be said of the creek in the northwest corner of the township, and I am informed that in dry seasons both are liable to be dry. At present writing (May) Eaglehills creek is falling at the rate of two inches per day. This creek has a deep cut bed and is not liable to overflow, nor is the creek to the northwest liable to flood any land in this township. There are no water-powers, and I do not think any could be obtained by building dams without overflowing large areas. In the month of May during the time of the survey we had ice on pails, &c., at night, and 80 degrees in the shade in day-time. It is too early in the season to reckon on summer frosts. There is no timber for fuel, and I have not heard of coal or lignite in this locality. No stone quarries nor minerals were noticed. Antelope, ducks, geese and prairie chickens were seen, the latter very numerous. Some pike are found in Eaglehills creek. At the present time the township is overrun with homestead seekers and land speculators. One of the former is building on section 2, but was not at home at the time of the survey.—*H. B. Proudfoot, D.L.S., 1903.*

Township 36.—From Saskatoon this township is reached by a trail running due west for 14 miles, thence southeasterly to the line between townships 35 and 36, which it follows to the line between ranges 9 and 10. The soil is chiefly sandy loam or sandy clay, overlying sand, and at a considerable depth clay, which makes it eminently adpated for the growing of all kinds of hardy cereals. The whole surface is rolling prairie, excepting where cut by Eaglehills creek. Scrub willow, &c., and in some places ash, are met with in the valley of the creek, but there is no timber of any size. In the northwest quarter of the township a few bluffs of small poplar occur, but the timber seems to die before reaching any size. From the appearance of the old grass on the prairie, it is altogether too short and too thin for hay, and as the township is very dry, there are very few sloughs where hay might be cut. The water in the sloughs is, as a rule, fresh, but in Eaglehills creek it is slightly alkaline, which can also be said of the creek flowing into Eaglehills creek in the southwest corner of the township, and I am informed that in dry seasons both creeks are inclined to be dry. At present writing Eaglehills creek is falling at the rate of two inches per day. This creek has a deep-cut bed, and it is not liable to overflow, nor is the creek in the south-

west liable to flood any land in this township. By the construction of large dams in the lower reaches of Eaglehills creek in township 36, range 10, water-power might be obtained, but a more complete record of the flow of water in all seasons would be necessary to obtain reliable information. In May, during the time of survey, we had ice on pails of water at night and 80° in the shade in the day-time, but it is too early in the season to reckon on summer frosts. There is very little timber for fuel, and I have not heard of coal or lignite in this locality. No stone quarries were noticed and no minerals. Game consists of antelope, duck, geese, prairie chickens, the latter very numerous, and some pike are found in Eaglehills creek. At the present time the township is overrun with homestead seekers and land speculators, although no permanent improvements have been made. I have noticed some scratching done with ploughs at various places.—*H. B. Proudfoot, D.L.S., 1903.*

Township 41.—This township can be reached conveniently from Saskatoon by following a good trail westward about 26 miles to the ferry across the Saskatchewan at the big bend, thence by a good trail northerly and westerly, made by settlers and land-hunters into and across the township. The soil is generally a sandy loam, and in places a rich black loam with sand and clay subsoil, suited for agricultural purposes. The surface is generally rolling, but without any hills, and is prairie with numerous patches of poplar and willow brush scattered throughout. The largest timber is not more than eight inches in diameter, and is in small scattered clumps, but is suitable only for fencing and fuel. There are numerous small areas of hay land. The water in the ponds and sloughs is slightly alkaline. There is only one good-sized lake in the township occupying parts of sections 5 and 6, but the greater part of this lake is in the township adjoining to the south. Its water is slightly alkaline. There are no creeks, no water-powers, no minerals or stone quarries, and only small game. There were no summer frosts. There are several settlers in the township.—*David Beatty, D.L.S., 1903.*

Township 42.—This township can be reached by crossing Saskatchewan river at Carlton, and thence following the Carlton and Fort Pitt trail which passes about one mile from the northwest corner of the township. The soil is mostly third class and a small quantity of second class, but very sandy. The surface is rolling prairie, sand hills, and some patches of open prairie, with numerous clumps of small poplar brush, stunted poplar and willows, and is broken by numerous sloughs, ponds and small lakes. There is a large creek of fresh water, with banks thirty feet high, flowing into Redberry lake, situated in the northwestern portion of this township. The poplar in this township is too small to be of any use for building purposes, but would be useful for fencing and fuel. There is no water-power, stone quarries or minerals. Only small game was seen during time of survey. The climate is good. In conclusion, this township can be described as more suitable for grazing purposes than for farming.—*David Beatty, D.L.S., 1903.*

Township 43.—This township can easily be reached from Rosthern by a good trail through a well settled country almost due west about 25 miles to a ferry across the Saskatchewan river, thence by a good trail northerly about 13 miles to the intersection of the Carlton and Battleford trail, thence westerly along said last mentioned trail which passes through township 42, range 10, about three miles south of this township. The soil in the western part or half of the township is fairly good, the greater part being a brown loam with clay subsoil, but in some places light and sandy. It is fairly well suited for agricultural purposes. The eastern half of the township is a lighter soil and in many places gravelly and is not good farming land. The surface is rolling with considerable brush and patches of small poplar suitable for fuel but very little large enough for building purposes. There are no extensive hay meadows but quite a few small areas scattered throughout. The water is fairly good but in places alkaline.

We had no summer frosts. There are no stone quarries, no minerals and no water-powers. We saw no game except ducks and chickens, which were numerous.—*David Beatty, D.L.S., 1903.*

Township 44.—This township can be reached by crossing the Saskatchewan at Carlton and thence following the trail from Carlton to Fort Pitt, which passes about 2½ miles south of the southeast corner of the township. The soil is first and second class with some parts rather stony, but the greatest part well suited for agricultural purposes. The surface is rolling, covered with numerous patches of brush, willows and poplar brush, quite thick in some places. The surface is broken by numerous sloughs, ponds and small lakes. Section 1 contains a portion of Meadow lake which contains water of good quality. The water in sloughs and small lakes is slightly alkaline. There is a small quantity of fallen timber which may be useful for fuel. There is no hay, no water-power, no stone quarries and no minerals in this township. Small game only was seen during time of survey.—*David Beatty, D.L.S., 1903.*

Township 45.—This township can be reached by crossing Saskatchewan river at Carlton and then following the north trail from Carlton to Fort Pitt, which crosses this township in the north part from east to west. The soil is a brown and sandy loam, rather stony in places but on the whole fairly good for agricultural or grazing purposes. The surface is generally rolling or undulating prairie except the eastern part which is more or less broken and hilly. The surface is covered by numerous patches of poplar and willow brush broken by sloughs, ponds, good hay marshes and grassy slopes. The timber is suitable for fuel only. There is a large hay marsh in section 30. Gordon lake covering parts of sections 22, 23, 14 and 15 contains good fresh water; the other small lakes and ponds being slightly alkaline. There is no water-power, no stone quarries, no minerals and only small game in the township. The climate is good.—*David Beatty, D.L.S., 1903.*

Township 47.—The soil in this township is all first class, being for the most part a black loam with sandy loam or clay subsoil; it would be a good grain-growing township, but the greater part of it is covered with bush. The southern part of it, however, has very little bush, being mostly covered with a growth of thick willow scrub, but as it has been killed with fires the last few years, it will soon die out. The timber in this township is in the four northern rows of sections; it is principally poplar and an average diameter of about 7 inches. There are also quite a number of spruce. There is no hay of any account in this township, but it is plentiful a few miles to the south. There are two or three creeks running in a southeasterly direction in the south part of the township, and all the water found in the sloughs and creeks is of a first class quality. There is a good supply of wood all over the township. There are no stones to be found, except a few surface stones in the southwestern corner. There are no minerals of any kind. Prairie chicken and jumping-deer are the only kind of game. There is a good trail known as the Jackfish trail, about six miles to the south, a branch of which runs through the southwestern corner.—*John Molloy, D.L.S., 1903.*

Township 52.—(North outline.)—This range intersects the Thickwood hills, which in places are heavily timbered with thick bluffs of poplar, four inches in diameter. The surface of the country is very stony, and broken by a great many lakes, ponds, hay marshes and tamarack bogs, these being caused by beaver dams, which are found in every direction, and without which we would have experienced great difficulty in proceeding with the survey. All the streams flow northward. No trails were noticed. In sections 31, 32 and 35 the soil is a sandy loam from five to eight inches in depth, with a subsoil of sand and clay. In sections 33, 34 and 36 the soil is a black loam, varying in depth from four to six inches, with a clay subsoil. Thick windfalls cover the ground. —*A. Saint-Cyr, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN.

Range 11.

Township 35.—The route to this township is by the ordinary trails from Saskatoon. The country is a rolling prairie, with a surface soil of sandy loam and a subsoil of clay. There is no timber of any kind to be found. Small quantities of hay may be cut around every slough, but there are no big marshes. The water in all the sloughs is fresh. The creek or brook on the east side of the township runs dry early in the year. No water-power exists in the township. We had one frost in May. There is no fuel whatever. No minerals or rock exposures were noticed. Ducks and prairie chickens are found.—*H. B. Proudfoot, D.L.S., 1903.*

Township 36.—This township is reached from Saskatoon by the trail running due west about 14 miles therefrom, and thence northwest to the north boundary of township 35 and along that line to the southeast corner of this township. The soil is principally black or sandy loam from 6 to 18 inches in depth, with a clay and sand subsoil, and always clay at considerable depth, making a good grain-raising district. The surface is all open-rolling prairie; no timber or scrub was met with. A few small poplar occur in bunches on the edge of the lake. No hay swamps were seen. Water in the small sloughs is fresh and sweet, but alkaline in the large lake and the creek. The creek is not of sufficient volume to afford water-power. There is no fuel of any kind. No stone quarries or minerals were discovered. Antelope, geese, ducks and prairie chickens were seen.—*H. B. Proudfoot, D.L.S., 1903.*

Township 41.—This township is easily reached by a good trail from Saskatoon to the ferry at the big bend on the Saskatchewan. From said ferry there is a very good trail made recently by the land hunters and settlers going into this and adjoining townships. There are a few settlers in the southern part of the township. The greater part of this township is good farming land, with patches of poplar and willow brush scattered throughout. There is considerable poplar timber suitable for fencing and fuel in the northeast part. Nearly every section has small areas of hay land. There are a few small lakes in the township. The water is fairly good, but slightly alkaline. —*David Beatty, D.L.S., 1903.*

Township 42.—This township can be reached from Carlton, crossing the Saskatchewan at that point, and following the Carlton and Fort Pitt trail, which passes close to the northwest corner of the township. The soil is first and second class, with some third, and is well adapted for agricultural purposes. The surface is in great part rolling prairie, with small portions of level open prairie covered with patches of poplar and willow brush, broken by a few marshes, sloughs and ponds or small lakes. The water is a little alkaline in the sloughs, but generally good and fresh in lakes and ponds, and is found in sufficient quantity all through this township for the wants of settlers. There is no water-power, no stone quarries, no minerals, and only small game in this township. Poplar large enough for fencing purposes can be found in a gully 50 feet deep in the western part of section 22, but the best of the timber would only be suitable for fuel. A small quantity of hay could be taken from the marshes. In conclusion, I may say that this township is well adapted for settlement.—*David Beatty, D.L.S., 1903.*

Township 43.—This township can be reached from Carlton by crossing the Saskatchewan at that point and then following the trail from Carlton to Fort Pitt, which crosses the south part of the township. The soil is first class, brown loam with clay subsoil. The surface is rolling and undulating prairie with some level portions. There are some scattered clumps of poplar and willow brush, but no heavy timber. There is a fairly good supply of water from the few ponds and sloughs, in the latter the water is slightly alkaline. There is a little hay, no water powers, no minerals and a very limited quantity of wood for fuel. There were a few antelope seen. This

township is well suited for agricultural purposes. The climate is good.—*David Beatty, D.L.S., 1903.*

Township 44.—This township can be reached by crossing Saskatchewan river at Carlton, and then following the Carlton and Fort Pitt trail, which passes about 5 miles south of the south boundary of the township. The soil is a good black and brown loam of first quality, suitable for agricultural purposes. The surface is rolling and some parts level prairie covered with numerous patches of poplar and willow brush, broken by two small lakes in sections 23 and 24 and a few small sloughs and ponds. There is no hay, no water-power and very little timber suitable even for fuel. There are no stone quarries, no minerals and only small game. The climate is good. The township is well suited for agricultural purposes.—*David Beatty, D.L.S., 1903.*

Township 45.—This township is rolling prairie with bluffs of small poplar and willow. There are quite a number of fresh water lakes and sloughs. The soil is a black loam averaging about 8 inches in depth; the subsoil is red clay. There is considerable stone on the ridges throughout the township, but the stones are all on the surface. There is sufficient wood in the bluffs for fuel and fencing. Suitable timber for building purposes is scarce. There is any amount of hay in the meadows. This part appears to be free from summer frosts. There is a good trail running through the northern tier of sections to Duck Lake, a station on the Prince Albert branch of the Canadian Pacific Railway. There are no streams or water powers in this township. Small game such as ducks, geese and prairie chicken are plentiful. I did not see any large game. There are no minerals or stone quarries in this township.—*W. J. Deans, D.L.S., 1903.*

Township 46.—This township is rolling prairie with considerable willow and poplar scrub. There are a number of hay meadows in the southerly part and numerous ponds and lakes of fresh water in the northerly part. The soil generally is black loam averaging 8 inches in depth. The subsoil is clay. This township is well adapted for mixed farming. There is sufficient wood in this township for fuel and fencing, but none for building purposes. There is only one small stream about 6 links wide which runs into Island lake. There are no water powers or minerals of any kind. Small game such as prairie chicken and duck are plentiful. This part of the country appears to be very dry and is free from summer frosts. There is a good trail from Duck lake station to the southerly part of the township. There are no settlers in the township at present.—*W. J. Deans, D.L.S., 1903.*

Township 52.—(North outline.)—The surface continues level across this range, but with the exception of section 31, which is marshy, the country is drier and better suited for agricultural purposes, being drained by a river one chain wide and six feet deep, with a stony bottom, which flows out of a large lake and crosses the base line at a point 55 chains east of the northeast corner of section 32. The surface is covered with a light growth of poplar, and a few scattered clumps of spruce and scrub willow. West of the river the country is level, and poplar and spruce 10 inches in diameter occur in bluffs or in narrow belts. Section 36 is stony and the surface rolling and much broken by deep ravines. An old cart trail coming from the south intersects the base line near the northeast corner of section 32 and joins the Carlton and Green lake trail a few miles farther north. The soil is a black loam from 6 to 14 inches deep on a subsoil of clay or clay and stones.—*A. Saint Cyr, D.L.S., 1903.*

Range 12.

Township 35.—The method of reaching this township is either by the trail running west from Saskatoon or by trail from the elbow of the Saskatchewan, which crosses the 9th correction line about 1 mile east of the southeast corner of the township. The soil in the southeastern part is principally clay loam on a clay subsoil and is excellent

farming land where not spoiled by alkali. In the northwesterly part of the township the soil is more of a sandy nature and stony on the hills. The surface of the country is all open prairie. The north and part of the east boundaries are in the Eaglehills, but the rest is undulating or rolling prairie with no timber of any kind. There are some large alkaline sloughs and numerous small fresh water ponds, but no rivers or brooks. The first week of June, 1903, had hot days and cool nights, with high winds, but no frosts during that time. There is no fuel available in the township. No stone quarries or minerals were noticed. The game consists of antelope, ducks and prairie chickens.—*H. B. Proudfoot, D.L.S., 1903.*

Township 36.—A good trail from Telegraph coulee runs across this township, and I think is the best way of reaching it. The soil is generally black or sandy loam, with sometimes sand, but mostly clay subsoil. The township is better adapted, on account of the roughness of the surface, for grazing than grain growing, good grass being found in the valleys of the Eaglehills. The surface is all open prairie and being in the Eaglehills is very rough and hilly, the tops of the ridges and knolls are very stony, but few stones are met with in the valley. Considerable quantities of hay may be cut along the creek and around some of the lakes, but no large hay meadows were found. Three lakes of considerable size occur in the township, mostly alkaline, but no water-power is available in the creek joining them, on account of the small flow and no fall. No area of any extent would be affected by high water. In the last week of May, 1903, we had hot days and cold nights, with high winds but no frosts. There is no fuel, stone quarries or minerals in the township. Antelope, duck, geese and prairie chicken are plentiful.—*H. B. Proudfoot, D.L.S., 1903.*

Township 37.—A trail running westerly from Saskatoon passes through township 36, range 12 about 2 miles south of this township, affording the easiest way of reaching it. East of the Eaglehills the soil is a black loam or clay loam, with a clay subsoil, a good grain district. In the Eaglehills the soil is light, and on the tops of the ridges stony; but as there is excellent grass in the valleys it will prove a good grazing country. The surface is all open prairie, no timber being met with except a few small bunches of poplar around lakes 1 and 3. Hay can be cut around the sloughs, but no large marshes were seen. There is very little running water. The water in the small sloughs was fresh, but in lake No. 3 very alkaline. No water-power is available. In July it was very hot in daytime, with cool nights; no frosts were recorded. There is no fuel in any quantity nearer than township 38, range 13. There are no minerals or exposed rock. Antelope, ducks, chickens and partridge were fairly numerous.—*H. B. Proudfoot, D.L.S., 1903.*

Township 38.—An old trail, a branch of the Saskatoon and Battleford trail, passes through this township, being rather old, but in fairly good condition. The soil is black and clay loam, with clay subsoil, rather sandy towards the westerly boundary, but suitable for grain-growing. There are a few alkaline flats which are good for nothing. The surface is rolling prairie. There is no timber. Good hay can be found around most of the sloughs and lakes, but the prairie grass is short and thin. Water in the large lakes is very alkaline, but good in the small ones and in sloughs. A creek of small size crosses the township, but there is not enough water or fall to afford power. The climate is good; no frosts were recorded during the time of survey (July). Plenty of wood can be got for fuel in township 38, range 13, but there is none in this township. There are no stone quarries or minerals. Ducks and chicken were noticed. —*H. B. Proudfoot, D.L.S., 1903.*

Township 42.—This township is well suited for farming, although the soil is not quite as heavy as is desirable for wheat-raising, being of a light sandy nature, with mostly a clay subsoil. The greater part of the township is mostly level or undulating prairie, partly covered with thick willow scrub, which is evenly distributed over the township. There is no timber of any account. There are very few hay meadows in

the township, although it is well covered with a good growth of grass, which makes excellent pasture. There are no streams of any kind in this township, but there are quite a number of sloughs which supply water during the summer season, although not of a first class quality for domestic purposes. Good water can be had by digging from twenty to thirty feet. There is no timber that would do for fuel, but poplar can be had about twelve miles south, and spruce, tamarack and poplar about thirty miles north. There is enough surface stone in this township to supply settlers for building purposes, but which will in no way interfere with the cultivation of the land. There are no minerals in this township. The only kind of game found is prairie chicken, wild ducks, and a few jumping deer. The climate of this district is rather mild, resembling the climate of Manitoba, except that there are not the severe blizzards which are so common in Manitoba. There are no summer frosts. The township is easy of access. There is a good trail from Saskatoon, which enters it in section 6 and traverses it in a northwesterly direction, leaving the township in section 32. The Fort Pitt and Carlton trail also runs along the north boundary of the township.—*John Molloy, D.L.S., 1903.*

Township 43.—This township is very well situated for farming, although the northern part of it is somewhat hilly. The soil is mostly a black loam with a clay subsoil, but in some places it is a sandy loam. It produces excellent grass for pasture, but on account of the scarcity of hay meadows it will not be very suitable for ranching, there being only two or three hay meadows in the whole township; they are situated in the southern part. The greater part of this township is heavy, rolling or hilly prairie, with no timber and very little scrub, except on the edges of the sloughs. There are one or two small creeks in this township having excellent water. There is a lake in part of the north boundaries of sections 32 and 33. The water is of a very good quality. There is another large body of water in the southwest corner of the township, but as it is not permanent, it could not be termed a lake; the water is unfit for use, being alkaline. In dry seasons this marsh would produce an immense amount of hay. There are no stones of any account in this township, and no minerals of any kind. The only kind of game found is the prairie chicken and wild ducks. The climate is moderate, resembling that of Manitoba, with the exception that blizzards are less frequent and less severe and less strong winds in summer. There are no summer frosts. The Fort Pitt and Carlton trail crosses this township in the northern half. It is an excellent trail, as it has been well travelled the past few seasons.—*John Molloy, D.L.S., 1903.*

Township 44.—This township is very suitable for either farming or ranching, particularly farming, as the soil is mostly a deep black loam with a good clay subsoil, but in the northwest corner and part of the southern portion it is inclined to be hilly. In these portions the soil is a sandy loam with clay subsoil. All the remainder of the township is gently rolling, with an occasional hill. There is scarcely any timber, but there is considerable willow and poplar scrub, especially around the sloughs, of which there are quite a number. There are, however, a few poplar bluffs in the northwestern part of the township; there is not enough for fuel, but this can be obtained in large quantities about 30 miles to the north. There is very little hay of any account in this township, but in dry seasons it can be obtained in the sloughs where there is water at present. The water supply in this township is fairly good, there being quite a number of fresh water sloughs scattered throughout and quite a large lake in the southwestern portion. There are also two or three small creeks, but they only contain water for a part of the season. Enough stones for building purposes can be obtained in the hilly portions of the township for a few years. There are no minerals of any kind to be found. The only kind of game is the prairie chicken and wild ducks. The Jackfish and Carlton trail, which is an excellent one, passes about six miles to the north and the Fort Pitt and Carlton trail passes about six miles to the south.—*John Molloy, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN—RANGE 12.

Township 45.—This township is mostly level prairie. In the northerly part there are a few bluffs of small poplar suitable for fencing and fuel. I did not see any timber suitable for building purposes. The soil is a black loam averaging 6 inches in depth; the subsoil is clay. There is a small stream from 15 to 30 links in width running westerly through the northerly part of this township. There are numerous fresh water lakes and ponds in the western part of the township, but there do not appear to be many hay meadows. The township is bounded on the west by a range of hills from 80 to 125 feet in height. The township is well adapted for farming purposes; grain of all the usual kinds does well. There are no summer frosts in this part. There are no water-powers nor minerals of any kind in the township. Prairie chickens and ducks are plentiful. A trail from Duck Lake station runs through the township. There was one settler in this township when I was subdividing; he was engaged in raising cattle and had a few acres in wheat which looked well.—*W. J. Deans, D.L.S., 1903.*

Township 46.—This township is mostly level prairie except the northeasterly part which is rolling. The surface in places is covered with small poplar and willows, but the township generally is open prairie. There are a few hay meadows scattered throughout the township which yield a large amount of hay. The soil generally is a black loam from 2 to 12 inches deep, the subsoil is clay. The land in spots is stony but not enough to prevent cultivation and the production of good grain crops. There are a few small streams throughout the township which dry up in the summer. There is not enough timber for fuel or fencing in this township and none large enough for building purposes. There are no water-powers nor minerals of any kind in the township. Small game is plentiful, also small fruit. There are a number of lakes and ponds, generally small, scattered throughout the northerly part of the township. The land throughout the township, generally speaking, is good and well adapted for farming purposes. This part of the country appears to be free from summer frosts. There is a good trail from Duck Lake station to this township.—*W. J. Deans, D.L.S., 1903.*

Township 47.—(East outline.)—Section 36 contains quite a large lake; the east boundary passes through a spruce bluff, the trees average 8 inches in diameter. Sections 25, 24, 13, 12 and 1 are covered with a thick growth of willows and small poplar. There are numerous small ponds and sloughs all along the east boundary of this township. The soil is first and second classs.—*W. J. Deans, D.L.S., 1903.*

(Subdivision.)—The route followed to this township was from Rosthern, on the Prince Albert branch of the Canadian Pacific Railway, westerly crossing the Saskatchewan river at the Doukhobor ferry, then northwesterly to the southeast corner of township 45, range 13, west of the third meridian and northerly through townships 45 and 46. The soil in the township is a clay loam about six inches deep, with clay subsoil, and is suitable for grain growing or ranching. The surface is rolling prairie alternating with clumps of poplar timber and poplar and willow brush in nearly equal proportions. The timber is poplar, and is from two to eight inches in diameter, and is scattered more or less over nearly the whole of the township. There are very few hay meadows, but good long grass grows everywhere in the township. The water in the creeks, of which there are several, is fresh. The water in the lakes and ponds is alkaline. The creeks are small, only 10 or 15 links wide and about three feet deep. I think the water in them is permanent. The land is not liable to be flooded. There is no water-power. The climate is mild in summer. The first frost occurred the night of September 1. There is sufficient poplar timber for fuel nearly everywhere in the township. There are no coal or lignite veins in the township and no stone quarries or minerals of economic value. The only game I saw was ducks, geese and prairie chickens. There are no settlers in the township.—*J. J. McKenna, D.L.S., 1903.*

Township 48.—(East outline.)—The east boundary of section 36 for 64 chains runs through thick poplar averaging six inches in diameter. At 64 chains the north shore of Meeting lake intersects the line. This lake is some three miles long and from one

to two in width. The water is fresh and abounds with jackfish and pickerel. The shore of the lake is generally stony and a few feet higher than the water. The line south of Meeting lake runs through a country covered with a thick growth of willows, and in section 24 poplar about six inches in diameter. There is some spruce in section 25 near the lake shore, but it is small. Sections 13, 12 and 1 are covered with a thick growth of willows and small poplar. The soil is first and second class.—*W. J. Deans, D.L.S., 1903.*

(Subdivision.)—This is a first class farming or ranching township. The soil is a deep black loam with a clay subsoil, the surface being undulating or gently rolling, covered mostly with willow scrub (the greater part of which has been killed by recent fires), and a good number of poplar bluffs. There is also a good supply of spruce toward the northern part of the township, especially in sections 30, 31 and 32. There is no hay to be found in the township, but there is considerable a few miles to the south. All the water in the creeks and Meeting lake is of a first class quality. There is a good supply of wood to be found all over the township, and all the country to the north appears to be heavily timbered with spruce and poplar. There are no stones or minerals of any kind to be found. The prairie chicken and jumping deer are the only kind of game to be found. A few fish can be found in Meeting lake, which covers the greater part of sections 25, 26, 34, 35 and 36. A branch of the Jackfish trail, which runs to Carlton and Duck lake, passes through the southern part of the township.—*John Molloy, D.L.S., 1903.*

Township 52.—(North outline.)—Across this range the country is level, much of it being hay land or covered with thick willow. Where the nature of the land permits, or where slight elevations occur, it is timbered with poplar, eight inches in diameter, birch and large alder. The country is dotted with small ponds and tamarack swamps. The eastern half of section 31 and nearly all of section 32 lie in a marsh one-half a mile wide and extending southward nearly three miles. Another large marsh covers the western half of section 35. In sections 31, 32, 33 and 34, the soil on the high land is black loam, six inches to fourteen inches in depth, with a clay subsoil. In sections 35 and 36 is found a black mould and sandy soil to a depth of six inches with a subsoil of clay and sand.—*A. Saint Cyr, D.L.S., 1903.*

Range 13.

Township 35.—A trail from Telegraph coulee which connects with the Battleford-Saskatoon trail, crosses the northeast corner of the township, making a convenient way for reaching it. The soil is a black or clay loam on a subsoil of clay or sand, and where not too hilly it is a good grain raising locality. A spur of the Eaglehills crosses the northwestern portion and breaks the surface considerably with high stony ridges. The remainder of the township is high rolling prairie. No timber of any kind was found. Hay is very scarce and the grass thin and weak. A saline lake of considerable size lies in sections 19, 20, 29 and 30 with springs around the shores, but otherwise water is very scarce; none running and very few sloughs. Last week in July, 1903, was very wet, rain every day and cold, but no frosts. There is no fuel whatever. No stone quarries or minerals were noticed. A few antelope, ducks, geese and prairie chickens were seen.—*H. B. Proudfoot, D.L.S., 1903.*

Township 36.—The trail from Telegraph coulee on the Saskatchewan passes through this township and is the easiest way of reaching this part of the country. The soil is generally light and very stony. A spur of the Eaglehills passes through the westerly part of the township rendering the surface very rough and broken and unfitting it for grain raising, but as excellent grass and water occur in the different valleys, stock raising could be followed advantageously. The surface is all open prairie, a few small scattered bluffs of small poplar and willow being all the timber

met with and that is not suitable for either fencing or fuel. No hay marshes were found. One lake, very salty, but of considerable size, was surveyed, while the whole township is dotted with small fresh water ponds and sloughs. No running water was encountered. There was good warm weather, but cold nights in the beginning of June. There is no fuel available. No stone quarries or minerals were noticed. Antelope, ducks, chickens and a few geese are to be found.—*H. B. Proudfoot, D.L.S., 1903.*

Township 37.—A trail from Saskatoon to Battleford passes through township 38, range 13, about 2 miles north of the northeast angle of this township. With the exception of a short season when the water is high in Eaglehills creek in the spring, this trail is in very good condition and affords the most convenient route for reaching this township. The soil is a black or sand loam alluvial deposit, overlying a clay subsoil. On account of the nature of the surface—high rolling prairie, with numerous small sloughs and ponds—this township is more adapted for grazing than grain growing. The surface is open prairie, with a few bluffs of small poplar, &c., near the southeast corner. Hay can be cut around all the sloughs and ponds. In a good many locations prairie wool can be harvested, which makes excellent winter feed for horses. No large hay marshes were seen. The water in the sloughs and ponds is fresh; only one small brook of running water was met with. The climate in June was warm and fine, with cool nights but no frosts. Good wood for fuel can be obtained in the northern part of township 38, range 13, but there is no quantity of it in township 37, range 13. There are no stone quarries or minerals. Numerous ducks and prairie chickens were seen.—*H. B. Proudfoot, D.L.S., 1903.*

Township 38.—The south trail from Saskatoon to Battleford crosses this township diagonally, and although not much used it is in good condition and affords a convenient way of entering this township. The soil is black and sandy loam, with as a rule, a clay subsoil. The surface is very much broken, with small steep hills interspersed with numerous ponds and sloughs. The southwesterly half of the township is prairie, ponds and sloughs having willow margins. The northeasterly part is mostly covered with bluffs of poplar and willow, with solid bush in some places in the northeasterly four sections. Most of the bush, however, has beeen burned, and very little timber suitable for building is now green. Plenty of fencing timber is to be had; the large timber is all poplar. Hay has been cut in large quantities in years gone by, as evidenced by the old hay fences and fire breaks, but the height of the water in the sloughs and flats has drowned all the best hay land. All the water tested in the lakes and sloughs is fresh; ponds are numerous and some large lakes were surveyed. A creek about 15 links in width flows easterly out of the large lake in the northerly part of the township, but where noticed does not afford water or facilities for power. At the beginning of July rain fell at times every day, with mostly thunderstorms, no frosts were observed, but weather was cool. Plenty of dry and green poplar is found in the northeasterly part of the township, but no coal. There are no minerals or stone quarries. A few antelope were seen. Ducks are numerous, also prairie chickens.—*H. B. Proudfoot, D.L.S., 1903.*

Township 43.—This township is first class for farming. The soil is mostly a black loam with a sandy loam or clay subsoil. The northern half of sections 34, 35 and 36 is somewhat hilly and there is a large marsh in the southwestern corner; with these exceptions, the remainder of the township is all first class for grain growing purposes. With the exception of some poplar growing along the shores of a lake, which is situated in parts of sections 17, 18, 19 and 20, there is no timber of any account. There are a few scattered willows growing around the sloughs. There is little or no hay in this township, unless in very dry seasons ; when the marsh in the southeastern portion of the township becomes dry it will produce immense quantities of hay. There are no creeks in this township, but there are quite a number of sloughs. The water is not

very good, but it can be used for domestic purposes. Excellent water can be had by digging about 30 feet. There is very little fuel to be found, but it can be had within about 35 or 40 miles. Enough surface stones can be had for building purposes for the early settlers. There are no minerals of any kind. The only game to be found is prairie chicken and wild ducks. The climate is moderate; this part of the country is not subject to the high winds in summer and blizzards in winter that are so common and severe in Manitoba. The Fort Pitt and Carlton trail passes through the centre of this township. It is a first class trail and in good condition on account of so much traffic passing over it the first two or three years.—*John Molloy, D.L.S., 1903.*

Township 44.—This township is a very inferior one, being very hilly, and is entirely unfit for agriculture on this account. It produces first class grass for grazing purposes, but on account of the scarcity of hay meadows could hardly be called a good ranching township. The hills are from 50 to 200 feet high, being very steep and mostly covered with a thick growth of poplar on the northern slopes, a considerable amount of willows are also found growing mostly around sloughs. The greater part of the township is prairie. There is no timber large enough for building purposes and scarcely any for fuel. There are quite a number of large sloughs in the valleys between the hills, also a large lake in the northwestern part of the township, with good water. No creeks were seen. Stones are found in good quantity, enough for building purposes, at least for the early settlers, for a few years, but not enough to interfere with cultivation of the soil. No minerals of any kind were found. The only game seen was prairie chicken and wild ducks. The Fort Pitt and Carlton trail passes a few miles to the south of this township, and the Jackfish and Carlton trail about 12 miles to the north.—*John Molloy, D.L.S., 1903.*

Township 45.—I left Rosthern on the Prince Albert branch of the Canadian Pacific Railway on Thursday, May 21, 1903, and travelled westerly, crossing the Saskatchewan at the Doukhobor ferry on section 30, township 42, range 6, west of the third meridian, thence northwesterly to the southeast corner of township 45, range 13, west of the third meridian, where I commenced work. The trail was muddy and heavy owing to recent rains. The soil in this township is generally clay loam with a clay subsoil, and is well adapted for grain growing or ranching. The surface is rolling prairie, except in the northern part, where there are some hills. There are a few bluffs of poplar timber and patches of poplar and willow brush, scattered through the township. There is not sufficient fuel for settlers in the township, and not many hay marshes, but good grass grows everywhere. The water is good, except in a few lakes and ponds, where it is alkaline. There is no running water except a creek which crosses the northwest corner of the township. There are no water-powers. The climate in summer is mild. The first frost occurred on the night of September 1. There is a large quantity of poplar timber growing in township 45, range 14, west of the third meridian, which is the nearest available fuel. There are no coal seams in the township, and no stone quarries, only surface stones on the hilltop. There are no minerals of economic value, and the game that I saw was ducks, prairie chicken and wild geese. There are no settlers in this township.—*J. J. McKenna, D.L.S., 1903.*

Township 46.—The route followed to this township was from Rosthern, on the Prince Albert branch of the Canadian Pacific Railway, westerly, crossing the Saskatchewan at the Doukhobor ferry, thence northwesterly to the southeast corner of township 45, range 13, and northwesterly through said township. The soil in this township is a clay loam with a clay subsoil, and is suitable for grain growing or ranching, especially ranching, as there is an abundance of good water and grass. The surface is prairie, and is hilly in the north and south and nearly level in the centre. There are a few bluffs of poplar timber and patches of poplar and willow brush in the southern half of the township. The timber in the bluffs is from 2 to 8 inches in diameter. The grass in this township is not as good as in township 45, range 13, and is not good for

hay as the grass does not grow high. The water in the creeks is fresh, and is, I think, permanent. The width of the creeks is about 40 links, with a depth of 3 feet and slow current. The land is not liable to be flooded. There are a number of small lakes or ponds, in which the water is mostly alkaline. There are no water-powers. The climate is mild in summer, with no summer frosts. The first frost occurred on the night of September 1. The nearest available fuel is in township 45, range 14. There are no coal or lignite veins in the township, and no stone quarries, only loose stones on the hills. There are no minerals of economic value in the township. The only game I saw was ducks, prairie chicken and geese. The trail from Carlton to Jackfish lake crosses this township. There are no settlers in this township.—*J. J. McKenna, D.L.S., 1903.*

Township 47.—The sections on the north and west sides of this township are rolling; the remainder of the township generally rough, broken, hilly and stony, the centre and southeast quarter of the township being very rough and broken by small creeks and deep ravines. Scattering clumps of brush are found in the south part of the township. As you go north poplar bluffs and heavy brush appear, until about 50 per cent of the north part of the township is covered with bluff and scrub. Field stones gradually disappear as you go north, the sections on the north side of the township being comparatively free from stones. The soil is mostly a rich sandy loam, from 4 to 6 inches in depth, with a sandy or clay subsoil, classed 3 and 4 on account of stones and broken surface, good for grazing purposes but generally not fit for cultivation. Not many sloughs and very little hay in this township. Water is fresh and plentiful in the creeks and sloughs, but in dry seasons might be scarce. There is no timber for lumbering purposes, and no stone quarries or minerals were seen in the township. The climate is good; frequent showers, bright days, cool nights and no frost. Ducks and prairie chickens are scarce. An odd jumping deer was seen. An old cart trail runs diagonally through the township from section 4 to section 34.—*Wm. R. Reilly, D.L.S., 1903.*

Township 48.—This township differs very much from the townships to the west and south of it. The surface is rolling. The north part of it is nearly covered with brush and poplar bluffs from three to eight inches in diameter. The bluffs will furnish abundance of fuel, fencing and rough timber for log buildings. In the south part are bluffs of poplar, willow and poplar scrub with openings of prairie. Willow is more plentiful than the poplar in the southeast quarter of the township. An old cart trail runs through the southeast quarter of the township. The soil generally is a rich loam from four to six inches in depth, mostly clay subsoil, comparatively free from stones and classes two and three. The township will be suitable for farming purposes. There is a large lake in the north half of section 33 with hay marsh on the east and south sides of it. There are very few sloughs. A small creek runs westward out of the township in section 7. Water is fresh in all, but there is not much in the township. Hay is limited. In dry seasons a quantity could be cut around the lake in section 33. The climate is good, frequent showers, bright days and no frost. There is no timber for lumbering purposes, no stone quarries or minerals in the township. Game is scarce. badgers, prairie chickens, coyotes and one bear were seen in the north part of the township. This township has been a favourite burying ground for the Indians, as a great number of graves are scattered all over the township.—*W. R. Reilly, D.L.S., 1903.*

Township 52.—(North outline.)—The western half of this range is level country and in sections 31 and 32, thickly covered with a forest of poplar, six inches in diameter and balm of Gilead. Near the low, swampy parts are belts of spruce averaging ten inches in diameter. North of section 33 most of the timber is fire-killed, though south of the line the forest of poplar, balm of Gilead and spruce continues. The western half of section 34 is wet and boggy. In sections 35 and 36 are numerous small ponds and marshes, surrounded by bluffs of poplar and clumps of spruce. There are

also large hay marshes except in section 33, where the soil is light. A good trail from Battleford and Jackfish and Birch lakes to the big bend of the Carlton and Green lake trail crosses the base line at a point ten chains east of the quarter section on the north boundary of section 32. The soil is a sandy loam four inches to ten inches in depth with a subsoil of clay and stones.—*A Saint Cyr, D.L.S., 1903.*

Range 14.

Township 35.—A trail running westerly from Saskatoon passes through this township, affording an easy means of reaching it. The soil is generally a clay loam with a clay subsoil, but in the southwesterly part of the township it is nearly pure sand; but the whole township can be classed as a good wheat raising district. In the northeasterly portion a few hills—the most southerly end of the Eaglehills—are met with. There is also one high hill in the centre of the township which is not touched by any of the lines. The whole township is open prairie. No timber, scrub, or even willows were encountered. Good hay can be cut around all the sloughs and lakes, but there are no hay marshes of any extent. In the sloughs the water was fresh but in the open lakes very alkaline. No running water was met with. In the beginning of August we had several severe frosts at night but the days were bright and warm. No fuel available nearer than township 36, range 12. There is some green poplar in the southwesterly corner of the township, but it is not large enough for either fuel or fencing. There are no minerals. A few ducks, prairie chickens and antelope were noticed.—*H. B. Proudfoot, D.L.S., 1903.*

Township 36.—A trail from Saskatoon to Tramping lake passes about one mile south of the southerly boundary of this township. With the exception of a few sections in the southeasterly corner of the township (which are in the Eaglehills where the soil is very light), the remainder of the township is eminently adapted for agricultural purposes, either grain raising or grazing. With the exception above noted the surface is all rolling prairie, no timber of any kind being met with. Good swamp hay can be cut around most of the sloughs, but there are no extensive hay marshes. No running water was found ; the water in the sloughs was generally fresh. We had one frost in the beginning of August, but I do not consider that it was severe enough to do harm. The days were warm. The nearest fuel available is in township 38, range 13—poplar, balm of Gilead, &c. There are no stone quarries or minerals. Antelope, prairie chickens and partridge are numerous.—*H. B. Proudfoot, D.L.S., 1903.*

Township 37.—A trail running westerly from Saskatoon passes through township 35, range 14, affording the most convenient route for reaching this township. In a wet season, however, this trail is liable to be very soft in passing through range 13. The soil is a black or sandy loam alluvial deposit, with a clay subsoil—a good grain country. The surface is all open prairie—no bush of any kind. Hay can be cut around all the sloughs, and there are hay marshes of some extent in sections 36, 35 and 26. The water in all the sloughs and ponds is fresh. No running water was met with. There is no water power. In the middle of June we had very warm days, but cool nights and no frosts. There is no fuel nearer than township 38 in range 13, where there is considerable poplar, suitable for building, fencing and fuel. There are no stone quarries or minerals. Antelope, ducks and prairie chickens are numerous.—*H. B. Proudfoot, D.L.S., 1903.*

Township 38.—The Saskatoon and Battleford trail passes through the northeasterly section of this township, affording an easy means of reaching it. The soil is generally a black or clay loam with a clay subsoil, gravelly in places, but generally good farming land suitable for grain raising. The grass is short on the top of the undulations, but strong and rich in the valleys. With the exception of section 36, the surface is rolling prairie, along the east and west boundaries hilly. On sections 25

and 36, thick small poplar is found, but of no large area in this township. Hay marshes of some size that have been cut for years are found in sections 1 and 2. Good hay can also be cut around all the numerous sloughs and ponds. No running water was noted. Fresh water sloughs and ponds are very numerous, and a large lake, which also contains fresh water, occurs partly in section 36. This lake has been surveyed. In June, 1903, there were hot days and cool nights; no frosts were registered. With the exception of the poplar, &c., on sections 36 and 25, no timber of any kind occurs in the township. No coal was found, nor stone quarries, nor minerals. Antelope and ducks were seen. Prairie chickens, although plentiful on the Eaglehills and eastward, are very scarce here.—*H. B. Proudfoot, D.L.S., 1903.*

Township 39.—The south trail from Saskatoon to Battleford passes through this township diagonally from southeast to northwest. The soil is a black and clay loam, with a clay subsoil and well adapted for grain raising. About one-half (the northeasterly part) of the township is partly timbered with second growth poplar and willow, the surface being rolling to hilly with a deep ravine on sections 25, 26 and 27, in which excellent spring water is found. The southwestern portion is open, hilly and rolling prairie. Some of the old timber (poplar up to 10 inches in diameter and a few birch) is still standing green, but the greater part of the timber is second growth poplar and willow. In years past large quantities of hay have been cut, but at present the height of the water in the sloughs and marshes has drowned the hay flats. No alkaline water is met with, the sloughs and ponds are all fresh and, as stated above, springs are found in the big ravine in sections 25, 26 and 27. A few lakes of some size have been traversed. No running water except extremely small streams are seen. No frost in last June, but very wet weather. There is plenty of poplar for fuel, but not sufficient for reservation. There were no stone quarries or minerals. Antelope, ducks and chickens were seen.—*H. B. Proudfoot, D.L.S., 1903.*

Township 43.—This township is first class for either farming or ranching purposes. The soil is principally a deep black loam with a clay subsoil, gently rolling or undulating. A good growth of grass and very few sloughs, although there are enough to supply water for stock. Good water can be had by digging about 25 to 30 feet. A considerable portion of the township is covered with scrub and heavy second growth poplar. There is a little poplar timber in the northwest corner that would be suitable for building purposes for early settlers. Apart from this, there is scarcely any timber that would do for either fuel or building. It can be had, however, about 35 miles to the north. Although there is a good growth of grass for grazing purposes, there is very little which can be utilized for hay. There are no creeks of any kind in this township, but the sloughs all contain good water. There are a few surface stones to be found, which would answer for building purposes. There are no minerals of any kind. The only kind of game to be found is prairie chicken, wild ducks and a few jumping deer. The Fort Pitt and Carlton trail, which goes also to Battleford and Saskatchewan, passes through the centre of the township from east to west.—*John Molloy, D.L.S., 1903.*

Township 44.—This township is first class for either ranching or farming, although the northern two miles of it is somewhat inclined to be hilly. The remainder is gently rolling or undulating, and the greater part of it is prairie, but there is a considerable portion of it covered with small poplar bluffs and thick willows, particularly along the western and northern rows of sections. The soil is chiefly a black loam with sandy loam or clay subsoil. The timber is scarcely large enough or in sufficient quantities to supply the early settlers with either fuel or building material. There is scarcely any hay to be found, although all the grass is of first class quality for grazing purposes. There is quite a number of sloughs and a large lake along the north boundary which supply sufficient water for stock. Good water can be obtained by digging 20 or 30 feet. There are no creeks of any kind to be found. There are

sufficient surface stones to be of use to early settlers for building purposes for a few years, but there are no minerals of any kind. The only game to be found is prairie chicken, wild ducks and a few jumping deer. The Fort Pitt and Carlton trail passes a few miles to the south and one branch of it passes through the township entering it on section 2 and running in a northwesterly direction. The Jackfish and Carlton trail is about 12 miles to the north.—*John Molloy, D.L.S., 1903.*

Township 45.—The route followed to this township was from Rosthern on the Prince Albert branch of the Canadian Pacific Railway westerly crossing the Saskatchewan river at the Doukhobor ferry, thence northwesterly to the southeast corner of township 45, range 13, thence westerly through the same township. The soil is mostly clay with clay mixed with stones on the hills, with clay subsoil and is not well suited for agriculture. The surface is broken by two large lakes in the south half of the township. These lakes are surrounded by poplar timber. The remainder of the township is nearly all hilly prairie with bluffs of poplar timber and poplar scattered through it. The timber is poplar from 2 to 12 inches in diameter and surrounds the lakes in the south half, also bluffs of poplar and poplar with willow brush alternate with the prairie in the rest of the township. There is one hay meadow about 50 acres in extent in the southeast corner but very poor short grass grows in the rest of the township. There is one creek about 30 links wide and 3 feet deep which crosses a small portion of the northeast corner of this township; the water is fresh. The water in the lakes is alkaline. I think the water will be permanent. The land is not liable to be flooded, and no water powers exist. The weather in summer is mild; the first frost occurred on the night of September 1. There is sufficient poplar timber in the township for its supply and for adjacent townships also. No coal or lignite veins were seen, no stone quarries and no minerals of economic value. The only game I found was ducks, geese and prairie chickens. There are no settlers in the township. I think owing to the surface of the township being much broken with hills and lakes and the occurrence of much timber, that it would be advisable to hold it as a timber reserve for fuel for adjacent townships.—*J. J. McKenna, D.L.S., 1903.*

Township 46.—The soil in this township is generally clay loam and clay subsoil and is suitable for grain growing or ranching, as there is an abundance of fresh water and grass. The surface is rolling prairie with hills in the north and south portions of the township. There are many poplar bluffs and patches in the southern half of the township. The poplar on the bluffs is from 2 to 8 inches in diameter, but is not sufficient for fuel for the southern half of the township, where it is located. Good hay grows nearly everywhere, but more especially in the northwest corner of the township where there is a large hay marsh. There are three creeks crossing this township, also several small lakes and ponds. The water in the creeks is fresh, but in most of the lakes and ponds it is alkaline. The streams are small, about 30 or 40 links wide, and three feet deep with a slow current. The lands adjacent are not liable to be flooded. There are no water powers in this township. The climate in summer is mild with no summer frosts. The first frost occurred during night of September 1. The nearest available timber is in township 45, range 14, west of the third meridian, where considerable is growing. There are no stone quarries, only loose stones on the hills. There are no minerals of economic value in the township. Wild geese, ducks and prairie chicken are all the game seen. The old trail from Carlton to Jackfish lake crosses the township. There are no settlers in the township.—*J. J. McKenna, D.L.S., 1903.*

Township 47.—This township is very similar to the townships north and west of it. The surface of the tiers of sections on the east and west side of the township is rolling and stony; the rest of the township is rough, broken, hilly and stony. Clumps of willow, poplar and alder brush and bluffs of poplar from 2 to 8 inches in diameter are scattered all over the township. The poplar bluffs will furnish good fuel and

timber for fencing purposes and rough log buildings. The heaviest bluffs are in the northwest quarter of the township. A large creek from the north enters the township in the northeast quarter of section 33, flows southerly through the centre of the township in a deep valley in the north part of the township gradually widening out to a flat in the south part of the township. This valley is formed by a succession of hills and has not a well defined outline. The stream in the north of the township is from 6 to 8 feet wide, 1 foot to 1½ deep and a strong current. It gradually deepens, widens and becomes very sluggish where it leaves the township in the southeast quarter of section 5. A water-power could be developed in the north part of the township, but I do not think the stream is permanent. Large lakes with marshy shores are found in sections 30 and 31. They did not appear to be permanent, hence were not traversed. Water is fresh in the creeks and small sloughs found in nearly every section in the township. The soil is a good loam on clay and sand subsoil. It is very stony and is mostly classed as being unfit for cultivation, but well suited for grazing purposes. A great quantity of hay is found along the creek and around the sloughs, but on account of the stones would be hard to cut. No stone quarries, minerals or timber for lumbering purposes occur in the township. The climate is good, with sufficient rain and lots of sunshine, with cool nights but no frost. Game is scarce, some ducks, prairie chickens and an odd jumping deer were seen.—*Wm. R. Reilly, D.L.S., 1903.*

Township 48.—The two tiers of sections on the west side of the township are rolling and not quite so stony as the rest of the township. The east half is rough, broken, hilly and stony. A large creek from 8 to 10 feet wide and from 1 to 1½ feet deep and with a strong current enters the township, with low banks in the northeast quarter of section 34, and flows southward in a well defined, narrow valley through sections 34, 35, 27, 22, 15, 10 and 3, being joined in sections 22 and 23 by small creeks from the east and leaves the township in the southeast quarter of section 4. The valley gradually deepens from 20 feet in the north to 150 feet in the south. The creek has the appearance of one that would dry up in dry seasons as brush in many places is growing across the entire bed. If this were a permanent stream it would be valuable as a water power. At time of survey from 50 to 150 horse-power could be developed with a head from 10 to 30 feet. The soil throughout the whole township is a rich black loam from 4 to 10 inches in depth, with a sand or clay subsoil, but on account of stones is generally classed as being quite unfit for cultivation. It supports an excellent growth of grass, and is good grazing ground. Very few ponds or sloughs are found in the township, and only a very limited quantity of hay. Thick clumps of brush and poplar bluffs from 4 to 6 inches in diameter are dotted all over the township. The bluffs will furnish good firewood and timber for rough log buildings, the heaviest bluffs being found in the northeast quarter of the township. No minerals or stone quarries were found in the township. There is no timber for lumbering purposes. The water in all the sloughs and creeks was fresh and good. There are many ducks and prairie chickens in the township. A few badgers and an odd jumping deer were seen. The climate is good, abundance of rain, much sunshine, cool nights and no frosts.—*Wm. R. Reilly, D.L.S., 1903.*

Township 52.—(North outline).—The western edge of the Thickwood hills is crossed in this range, the height of land occurring in sections 31 and 32. The western half of section 31 is hilly. The eastern half is rolling, broken by numerous large bogs, extending through to sections 32 and 33, where the height of land between the Saskatchewan basin and the waters to the north lies. The surface of these sections is very stony and is covered with a dense forest of pine, 10 inches in diameter, birch 8 inches in diameter, poplar 6 inches in diameter, spruce and balm of Gilead, extending southward a distance of 3 or 4 miles. The eastern edge of this forest follows in general a southeasterly direction from Birch lake. Sections 34, 35 and 36 are covered by pine ridges separated by tamarack bogs. The land is very stony and is covered by thick un-

derbrush. South of the base line in section 35 is a range of hills, running in a southwesterly direction, forming the continuation of the height of land crossed in section 33. North of the base line and about 2 miles distant appears a deep depression occupied by a lake, 3 or 4 miles in length. This lake which appears to extend eastward across the boundary of range 14, is fed by a stream crossing the base line a quarter of a mile west of the northeast corner of section 34. An Indian pack trail leading to this lake crosses the line from the south a quarter of a mile west of the northeast corner of section 34. Section 36 is broken by high hills. The soil is a sandy loam, 6 inches to 10 inches in depth, with a subsoil of clay and stones.—*A. Saint Cyr, D.L.S., 1903.*

Range 15.

Township 35.—This township is situated about 60 miles west of Saskatoon, and 50 south of Battleford, and may be reached by good wagon trails from either place. From Saskatoon, which is much the better supply station, the route of approach is by way of what is known as the old Edmonton trail, as far as Eaglehills creek crossing where, though there is no bridge, the stream can be forded in safety at all but extremely high stages of water. About two miles west of the crossing the old Lizard lake and Edmonton trail is met with, striking southwesterly. This is followed through the Bear hills passing northwest of Lizard lake. These hills are well named as they present a very barren appearance, affording the traveller no fuel of any kind and very little water. Upon approaching the boundary of township 35, range 15, some small patches of poplar and willow scrub are met with and the country presents a more productive appearance. The trail enters the township on section 13 by way of a narrow neck of land between two alkaline lakes, and thence it continues on a westerly course across the township about two miles north of the south boundary, skirting the northerly edge of what is known as 'the 60-mile bush,' the easterly end of which commences on section 2 from which it extends westerly, covering portions of sections 3, 4, 5, 7, 8, 9 and 10. The soil is chiefly light sandy loam with clay subsoil, and may be termed second-class in most places. Portions of sections 2, 11, 10, 9, 8, 7, 16, 21 and 29 may be termed first-class and should be well suited for general farming purposes. North of the old Edmonton trail the surface of the township is that of an open rolling prairie, whilst south of the trail the portions above mentioned are covered with poplar bush. The greater portion of what is locally known as 'the 60-mile bush' occurs in the southwesterly part of the township, covering portions of sections 3 to 10 inclusive. This wooded area is chiefly covered with small poplar trees of from 2 to 6 inches in diameter, a few being as large as 8 inches. Few, if any, trees were observed of sufficient size or otherwise suitable for being manufactured into lumber. Although this bush is of little value as a timber supply, it is of great local value as fuel supply for the district. No wild hay marshes of any extent were observed, though the prairie grass is good and abundant everywhere for grazing purposes. There is one large lake of alkaline water on this township, covering the greater parts of sections 13 and 23, as well as portions of sections 12, 14, 24, 26, 22 and 27. The water of this lake though clear in appearance is unfit for drinking purposes, being very strongly alkaline. A portion of another large saline lake extends to sections 1 and 12, whilst at the southwest of the township there is a small fresh water lake covering portions of sections 5 and 6. Small fresh water sloughs were, however, quite numerous everywhere during the month of May. Nothing in the shape of water-power exists on this township. The local supply of fuel for the township is 'the 60-mile bush,' which is very convenient and sufficient for some years to come. It is composed chiefly of poplar trees of small size but when dry, these form an excellent fuel. Limestone in place occurs upon south boundary of section 3. Prairie chicken are quite plentiful about the edges of the woods, and ducks in great variety are found upon all the lakes and

sloughs in the township. Small white geese or wavies were seen in great numbers about the shores of the alkaline lakes during the month of May. Two swans were also observed at the same time and place. A few large brant geese were also observed later in the season. Curlews and many varieties of the plover family are very common through the district. A few antelope were seen about 'the 60-mile bush,' and though no deer were observed, several antlers were found indicating their recent existence there. Other smaller animals, such as badgers, prairie wolves, foxes, skunks and gophers are quite numerous. For description of climate, see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 36.—This township is situated about 60 miles west of Saskatoon and 45 miles south of Battleford, and is accessible from both places by means of fairly good wagon trails, Saskatoon being the nearest railway town, but Battleford being the nearest post office and telegraph station. The trail from Battleford to Swift Current passes along the westerly boundary of the township and affords a most convenient route. The soil is chiefly a sandy loam with clay subsoil, and in many places, particularly on the hill tops and summits of ridges it contains many boulders. The better sections of the township are suited for general farming purposes, whilst the rougher sections are more suited for stock-raising. The surface is open, rolling prairie, becoming hilly in some localities, particularly about the shore and towards the southeasterly end of a large salty lake occupying a central position in the township, as well as upon the shores of a smaller fresh water lake on sections 11 and 12. There is a small quantity of poplar and willow scrub, but not sufficient to be of any economic value. These are the only trees of any description in the township, and are of a very small and scrubby character, too small to be used as firewood. The township contains very few hay meadows or marshes of any size, although a good growth of prairie grass is everywhere to be found. By far the largest body of water is that of a salty lake covering portions of sections 9, 10, 15, 16, 17, 20 and 21. Another smaller lake of extremely bad alkaline water lies on the westerly side of section 30, and extends into range 16, but in the southeasterly portion of the township, on sections 11 and 12, there is a fresh water lake of about a mile and a quarter in length and a quarter of a mile in width; also another small one covering part of sections 1 and 12. Besides these lakes, numerous small fresh water sloughs are found in various parts of the township, those noted being on sections 4, 7, 19, 20, 23, 28, 30, 34 and 35. The water in most of these sloughs I judged to be permanent. No water power can be developed in the township. No fuel is found upon this township, but a convenient supply of wood is found in the township immediately to the south of it. No coal or lignite veins are known to exist in this locality and no stone quarries, or minerals of economic value. Prairie chickens are comparatively numerous, while ducks of great variety are found upon all the lakes and sloughs in the township. Small white geese or wavies may be seen in great numbers during the spring and autumn seasons, whilst the large brant geese also visit the locality in lesser numbers during the same seasons. Curlews and many varieties of the plover family are quite numerous throughout the district. Antelope are occasionally seen, although these are more numerous towards the wooded sections of the country, whilst other smaller animals, badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate see that given for township 35, range 16, west third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 37.—This township, which is situated about 60 miles west of the town of Saskatoon and 40 miles south of Battleford, is accessible from either of these places by good wagon trails. It is the more easily accessible from Battleford, as the distance from that place is not only less than that from Saskatoon, but the trail is more direct, and is in better condition for heavy traffic. The soil is chiefly clay and clay loam, which in many places, particularly on the tops of hills and ridges, contains many boulders. Some sections of the township are fairly well suited for general farming

purposes, whilst others are more suitable for grazing lands. The surface is entirely open and varies from that of an undulating surface to what might be termed decidedly hilly. No timber of any description is found upon this township. No hay marshes were observed in the township, but the prairie grass was fairly good on most of the sections. As is the case on the majority of the townships in this section of the country, the larger bodies of water are alkaline or salty. The largest lake in the township is situated in sections 22 and 23, and covers about 200 acres. This lake is strongly alkaline. A smaller one, also alkaline, covers portions of sections 23 and 24. A long narrow lake with saline water is found upon sections 28, 29, 32 and 33, whilst another of much smaller dimensions occurs at the corners of sections 29, 30, 31 and 32. Besides these bad water lakes, several fresh water sloughs or ponds were met with. One of these was crossed by the line between sections 9 and 16; another by the line dividing sections 19 and 20 and another, was found on the northwesterly portions of section 24. No water power exists in the township. No fuel of any description is found upon this township, but a sufficient supply for immediate use is found in 'the 60-mile bush,' only a short distance to the south. No coal is known to exist in this neighbourhood. No stone quarries were noticed in the township nor any minerals. Prairie chickens were comparatively numerous and ducks of great variety are found upon all the lakes and sloughs in the township. Small white geese or wavies may be seen in great numbers during the spring and autumn seasons, whilst the large brant geese also visit the locality in lesser numbers during the same seasons. Curlews and many varieties of the plover family are quite numerous throughout the district. Antelope are occasionally seen, although these are more numerous towards the wooded sections of the country, whilst gophers are quite numerous. For description of climate see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell D.L.S., 1903.*

Township 38.—This township is situated about 60 miles northwest of the town of Saskatoon, and 30 miles south of Battleford, from which latter place it is easily accessible by means of the old wagon trail leading from Battleford to Swift Current. Saskatoon is the nearest railway depot, but Battleford is the most convenient post office and telegraph station. The soil is chiefly clay loam or heavy clay for the most part containing many boulders. The better sections of the township might be used for agricultural purposes, but most of the sections are so stony and hilly that they are more suited for grazing lands. The surface of the township is open, hilly prairie, many hills ranging from 50 to 100 feet above the low lands. No timber of any description is found upon this township. Several rather extensive hay marshes occur in sections 2, 3, 10, 11, 8, 17, 15, 22, 23, 35 and 36. The water is as a rule fresh, the largest body being situated upon sections 2, 3, 10 and 11. This lake is quite shallow, and of a grassy character, but affords a permanent supply of water. Another marshy lake of similar character lies on sections 8 and 17, whilst other small ponds and sloughs are found upon sections 11, 12, 13, 14, 15, 22, 23, 26, 27, 32, 33, 35 and 36. Besides the above, a small stream known as Crane creek flows through a well defined deep valley upon sections 31 and 32, and contains a good supply of fresh water during the greater part of the year, although during extremely dry weather it almost entirely disappears. No water-power exists in the township. No timber or other fuel supply is found upon this township, and the most convenient source is township 40, range 15, immediately to the north. No stone quarries or minerals of economic value are known to exist in the township. Ducks of great variety are found upon all the lakes and sloughs in the township. Small white geese or wavies may be seen in great numbers during the spring and autumn seasons, whilst the large brant geese also visit the locality in lesser numbers during the same seasons. Curlews and many varieties of the plover family are quite numerous throughout the district. Antelope are occasionally seen, although these are more numerous towards the wooded sections of the country, whilst

other smaller animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate, see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 39.—This township is about 70 miles northwest of the town of Saskatoon, the nearest railway depot, and about 30 miles southeast of Battleford, the nearest post office and supply station. It may be conveniently reached from either of these places, as a good wagon trail leading from Saskatoon to Battleford passes close to the northeast angle of the township. The Battleford and Swift Current trail is also quite convenient, passing only about 4 miles westward. The trails leading to Battleford are somewhat hilly, but otherwise in very good condition during the greater part of the year for the passage of any ordinary loads. A large proportion of the soil may be termed first-class, whilst other sections may be considered as second or third-class. The soil is chiefly a clay loam with clay subsoil. Black sandy loam with good subsoil is found in some localities, particularly along the valley of what has been named Crane creek, which flows in a winding course through the township. The soil of this township, liks that immediately to the north, is particularly well adapted for general farming purposes, and being convenient to the town of Battleford is, in my opinion, a first-class locality for homesteading. It might be mentioned here that a preliminary railway location line is staked out through sections 13, 14, 22, 23, 27, 28, 32 and 33 of this township. The surface of the township is almost entirely open prairie, no timber being found upon it, and the only scrub being a few small patches in the valley of Crane creek. The greater part of the township is quite level, but it is cut through by the valley of Crane creek, which in the southern part of the township is very deep, ranging from 50 to 100 feet. The sections which are broken by the valley of this creek are chiefly 35, 26, 25, 24, 14, 15, 16, 9, 4 and 5. Several large hay marshes lie within the township, one covering the northeastern part of section 36; another, portions of sections 8 and 17; another is on the line between sections 33 and 34, and another of about 150 acres in extent on sections 10 and 3. Besides these, much of the valley of Crane creek contains a large quantity of good hay, and the whole township supports a good strong growth of prairie grass. This township is well supplied with fresh water, Crane creek passing from the northeastern part of the township to the southwestern. Besides this creek, fresh water is found in the hay marshes on sections 3 and 10, and 8 and 17, and numerous other small ponds along the north boundary of the township. The southeastern and the northwestern sections are comparatively dry. The general indications are that the climate of this locality is not unsuited for the growing of general farm produce. No summer frosts were observed during the time that we were engaged in subdividing the township, but on or about June 9 when we were engaged in surveying 18 or 20 miles farther to the south a heavy summer frost was experienced, which cut down many of the wild flowers, and particularly the wild pea vines. Although no fuel was found in the township, plenty of good dry wood is readily available from the township immediately to the north of it. No coal or lignite veins are known to exist in this locality. No stone quarries or minerals of value are known to lie in this township. Antelopes are occasionally met with, and badgers, foxes and prairie wolves are quite numerous. Ducks of many varieties are very abundant.—*J. W. Tyrrell, D.L.S., 1903.*

Township 40.—This township is situated about 70 miles northwest of the town of Saskatoon, which is the nearest railway depot, but only about 25 miles southeast of Battleford, the nearest post office and supply station and immediately adjoins on the south and east the Red Pheasant Indian reserve. It is within 6 or 8 miles of the northern branch of Saskatchewan river and the northerly portion of the township lies within the timber belt of that river valley. There are good wagon trails passing diagonally through the township from northwest to southeast, leading both to Battleford on the one side and Saskatoon on the other. The new government trail from

Saskatoon to Battleford passes only 3 or 4 miles to the north of the township and on the westerly side about 4½ miles distant, the old Battleford and Swift Current trail passes; so that the township is easily approached by several trails leading either from Battleford or Saskatoon. The trails from Battleford to the township are somewhat hilly but otherwise are very good during the drier seasons of the year. The soil is chiefly first-class, consisting largely of black loam or sandy loam with clay subsoil, and in some localities, clay soil containing a few boulders. The township I consider particularly well suited for general farming purposes, as everywhere upon it the natural growth of grass and other vegetation is very luxuriant. On section 11 a small patch of land comprising about 3 acres is already under cultivation and looked exceedingly well. No settler was, however, found upon the township. The southern portion consists of open prairie land somewhat broken and rolling though not very hilly. A considerable amount of scrub and willows is found on sections 13, 14 and 23, but sections 24, 25, 26, 35 and 36 are almost entirely covered with solid bush which is composed chiefly of poplar with a small proportion of birch. Forest fires, not many years ago, destroyed most of the large timber, the remains of which are still everywhere to be seen. Many old birch stumps and dead trees were observed of from 12 to 15 inches in diameter. I should judge that about one quarter of this township is coveerd with woods, the remaining three-quarters being either open prairie or prairie containing some willows and scrub. As already mentioned, sections 24, 25, 26, 35 and 36 are covered with bush, but a very small proportion of this bush is of such size or character as to be suited for the manufacture of timber, nearly all the large trees having been destroyed some years ago by forest fires, a few, however, still remain and consist chiefly of the aspen poplar. The average size of the trees in this wooded section is probably 3 inches, certainly not more than 4 inches. Fine hay marshes or meadows are found everywhere over the prairie sections of the township. A large quantity of the fine hay was observed on sections 13, 14 and 23, some of which was being cut and saved for winter use either by Indians from the adjoining reserve or settlers from some neighbouring locality. The quality of the hay so cut and dried appeared to be very good and seemed to be very much appreciated by my horses when we were passing through the township. The township is particularly well supplied with fresh water at all seasons of the year. Grassy sloughs containing fresh water were met upon most every section and several small brooks take their rise in the northern sections, one apparently having its source from the ponds in sections 23 and 36, runs in a southerly direction through sections 14, 11 and 2, passing into section 35 of township 39. This brook is the same as has been called 'Crane creek' in the more southerly township through which it passes. Two or three other small fresh water streams have their source in the northern sections of the township and run in a northeastern direction emptying into the Saskatchewan. While the volume of all these streams is quite small their flow appears to be constant and thus there is a permanent and continuous supply of good water for the ranchers or future settlers. Judging from the excellent supply of fresh water afforded by this township as well as the good quality of the soil, I consider it one of the best locations in the district for farm settlements. The streams of this township are all too small and insignificant to afford any considerable water-power. The general indications are that the climate of this locality is well suited for farming and grazing purposes. It is considerably sheltered from the north by the belt of timber bordering on the Saskatchewan, which large river of itself probably has a moderating influence on the climate. No summer frosts were experienced by us whilst engaged in the survey of this township. It possesses in itself an abundant supply of good dry wood as well as a growing forest. The five northern sections of the township as well as those of the adjoining townships to the north and east are well covered with both green and dry wood. No stone quarries of any description or minerals of value were found upon the township. As is usually the case, through-

out the Northwest Territories, game is more plentiful in wooded or scrubby districts than upon the more open prairie country. Ducks of many varieties were very numerous and prairie chicken were also found upon the scrubby sections. Antelope are occasionally found in the locality, whilst in the woods in the northern part of this township the tracks of a black bear were observed by some members of my party. Rabbits are very numerous in the woods.—*J. W. Tyrrell, D.L.S., 1903.*

Township 47.—We started by trail for Carlton, Tuesday, April 28, but arriving at the crossing, found the river full of ice, and were thus unable to cross till Friday, May 1. The trail was very soft in places, and the streams swollen, making travel on the road very slow. The township is rough, broken, hilly and stony prairie, thickly covered with clumps of willow and alder brush and scattered bluffs of poplar. Numerous fresh water sloughs are to be found in every section of the township. Lost-horse creek enters the township in the northwest quarter of section 33, and traverses the two westerly tiers of sections, leaving the township in the southwest quarter of section 6. The creek flows in a valley from a quarter to a third of a mile wide, with well defined banks from 100 to 150 feet high. The stream is rapid, varying from 8 to 20 feet wide and is from 1 to 2 feet deep, according to rate of current. Should the stream be permanent it would be a valuable water-pawer capable on account of the great fall of the creek in the township, of being utilized again and again by the building of dams, and would develop from 75 to 250 horse-power, with a head from 10 to 30 feet, but this being a very wet season the creek may be swollen beyond its usual size, and in dry seasons might be a very small stream. The poplar timber in the bluffs varies in size from mere saplings to 10 inches in diameter, and would furnish sufficient timber to supply the needs of the settler for fuel and rough log buildings. The heaviest bluffs are found in the northeast quarter of the township. The soil is a good black loam, mostly clay subsoil, but the presence of a great quantity of stones renders it unfit for cultivation. It supports a good growth of grass, and is well adapted for grazing purposes. A large hay slough is found in the east half of section 36; a rough log building being located on the same, showing that the rancher had some day made use of the hay. Outside of this hay slough very little hay is found in the township. No minerals or stone quarries are to be found in the township, but the field stone is valuable for building purposes. The only game is ducks, prairie chicken and an odd jumping deer. The climate has been very variable, numerous rain and snow storms in May, frequent showers in June and abundance of rain in July, but no summer frosts.—*Wm. R. Reilly, D.L.S., 1903.*

Township 48.—The township is very similar to township 47, range 15. The surface is rough, broken, hilly and stony prairie covered with clumps of willow brush and bluffs of poplar. The sloughs are not nearly so numerous as in township 47, range 15, but three large lakes were met with and traversed. One of these lakes is an expansion of Lost-horse creek, and is situated principally in the southwest quarter of section 17. This is a fine fresh water lake, containing abundance of jackfish. Lost-horse creek enters the township in the west half of section 33 and leaves the township in the west half of section 4, traversing the second and third tiers of sections from the west boundary in its course southward. The valley of the creek is not so well defined as in township 47, range 15, the outline of the valley being rather a succession of hills ranging from 50 to 100 feet than that of a continuous bank. The volume of the stream is very similar to that of township 47, range 15, but the stream itself is rather sluggish, flowing through marshy flats, and excepting in section 4 it would not be available with ordinary expense as a water-power, and then it would rate similar to that of township 47, range 15. The soil is a good loam, mostly clay subsoil and supports a good growth of grass, but it is too stony to be used for cultivation purposes and consequently only fit for stock raising. A very limited quantity of hay is to be found in the township. The water in all the sloughs and creeks is fresh. No minerals

or stone quarries were found, but the field stone is readily available for building purposes. Duck, prairie chicken, badger and a few jumping deer are the only game to be found.—*Wm. R. Reilly, D.L.S., 1903.*

Township 52.—(North outline).—The whole of seection 31 lies in the lake, the eastern shore of which intersects the base line at a point 18 chains east of the northeast corner of section 31. Section 32 is swampy and stony, covereed in places with small spruce, some scrub, willows and a few poplar. Section 33 is very stony and undulating, with a general slope towards the east. A forest of poplar, 8 inches in diameter, spruce 10 inches in diameter, birch 8 inches in diameter and jackpine 12 inches in diameter growing straight to a length of 40 feet, covers the eastern half of this section and the whole of sections 34, 35 and 36. Here the country becomes more hilly, and in places boggy. The underbrush in this forest is very heavy, consisting of large alders and thick willow. The wagon roads in this heavily timbered country, with the exception of the one cut by ourselves, have not been extended to any distance beyond the shanties. One Indian pack trail crosses the line about 10 chains west of the quarter section post on the north boundary of section 36. The soil is a black and sandy loam varying from 4 to 10 inches in depth, with a subsoil of clay and stones.—*A. Saint Cyr, D.L.S., 1903.*

Range 16.

Township 35.—This township is situated about 65 miles west of Saskatoon and 50 miles south of Battleford, and may be reached by good wagon trails from either place. From Saskatoon, which is much the better supply station, the route of approach is by way of what is known as the old Battleford trail as far as Eaglehills creek crossing where, though there is no bridge, the stream can be safely forded at all but extremely high stages of water. About two miles west of the crossing the old Lizard lake and Edmonton trail is met with, striking southwesterly. This is followed through the Bear hills passing northwest of Lizard lake. These hills present a very barren appearance, affording the traveller no fuel and very little water. The old Edmonton trail enters the township on section 13 and thence it continues on a westerly course across the township about two miles north of the south boundary. The soil is sandy and clay loam generally, having a clay subsoil, and may be said to range from first to third-class; as farming land it should be well suited for the production of all our common cereals and root crops. The surface of this township is open rolling prairie, although sections 11, 12, 13 and 14 are chiefly covered with poplar woods. The only timber supply found in this locality is that of 'the 60-mile bush' covering sections 11, 12, 13 and 14, as well as extending into range 15. The timber found in this bush is however, very small, ranging from 2 to 6 inches in diameter, and is therefore of little value as a supply of timber or lumber. Although good grass was observed to be everywhere and plentiful, no extensive hay lands or marshes were observed in the township. The water supply of this township is chiefly fresh and is quite plentiful in the numerous small ponds and sloughs found upon almost every section. Nothing in the shape of a water-power exists upon the township. No stone quarries exist upon the township nor were any minerals found. With regard to the occurrence of game in this locality it may be mentioned that prairie chicken are quite plentiful about the edges of the woods. Ducks in great variety are found upon all the lakes and sloughs in the township. Small white geese or wavies were seen in great numbers about the shores of the alkali lakes during the month of May, and two swans were also observed at the same time and place. A few large brant geese were observed later in the season. Curlews and many varieties of the plover family are very common throughout the district. In regard to animals, a few antelope were seen about 'the 60-mile bush' and though no deer were observed, several antlers were found indicating their recent

existence there. Other smaller animals, such as badgers, prairie wolves, foxes, skunks and gophers are quite numerous. With regard to climate, the year 1903, has been a very exceptional one, and as late as May 22 a fall of six inches of snow was experienced. The spring was very late and cold, so that it was towards the end of May before there was any grass for our horses. June was a fine dry summer month, but during July, rain was very abundant, making a fine growth of grass everywhere. Upon the 10th and 26th of July hail storms were experienced, and about June 9 a severe summer frost occurred which blighted the wild pea vines and some other flowery plants. Notwithstanding this, however, in the immediate vicinity only a few miles to the north, excellent crops of wheat and oats were harvested in the autumn, proving that such frosts as did occur were not sufficient to do serious damage. This township is exceptionally well situated in regard to its fuel supply, as abundance of wood may be obtained for immediate use from 'the 60-mile bush' already referred to. No coal beds are known to exist in this township.—*J. W. Tyrrell, D.L.S., 1903.*

Township 36.—This township is situated about 65 miles west of Saskatoon, and 45 miles south of Battleford, and may be reached from either place by fairly good wagon trails. Saskatoon is the nearest railway station, and consequently is perhaps the best supply station for the locality, but Battleford being considerably nearer is the more convenient post office and telegraph station, and from this place it is most easily reached by the old Battleford and Swift Current trail, which passes through the easterly tier of sections in the township. The soil is sandy clay and light sandy loam, with clay subsoil, and contains many boulders in most parts. It is probably suited for general farming purposes, but the existence of a large strongly alkaline lake, with exceedingly bad and offensive water, makes the township a very undesirable one for settlement, and on account of the presence of this bad water lake, it is more suited for grazing lands, for there is as a rule a good strong growth of grass right up to the muddy flats of the lake. The surface is open rolling prairie, broken only by the depression in which Whiteshore lake lies, the banks of this lake being from 50 to 100 feet in height. No timber of any description is found upon the township. No natural hay meadows or marshes were observed, although there is a good growth of prairie grass. As above mentioned, the large body of water which has been named Whiteshore lake lies in the northerly part of this township, covering portions of sections 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32 and 34, and it contains exceedingly offensive water which, with a favourable wind, can be scented at a distance of two or three miles. The chemical contents of this water are chiefly hydrous sulphate of sodium, but it contains traces of magnesium sulphate and sodium chloride, and apparently the combination is not a happy one. Upon section 11 there is also a small saline lake, and upon section 25 there is another lake, covering perhaps 200 acres, of extremely salty water. The bottom of this lake is covered with a white highly crystalline salt deposit. At the junction of sections 28, 29, 32 and 33 there is another small lake, or perhaps more probably a slough, of very foul alkaline water. On the line between sections 2 and 3 two other small alkaline lakes were found. Besides the above mentioned, a few small fresh water ponds are found, one on section 15, another on section 16, and others on sections 35 and 36. There is no water-power in the township. No fuel of any description is found in the township, the nearest available supply being in 'the 60-mile bush' in the township immediately to the south. No stone quarries or minerals of economic value were found. Prairie chicken are comparatively numerous. Ducks of great variety are found upon all the lakes and sloughs. Small white geese or wavies may be seen in great numbers during the spring and autumn seasons, and the large brant geese also visit the locality in lesser numbers during the same seasons. Curlews and many varieties of the plover family are quite numerous throughout the district. Antelopes are occasionally seen, although these are more numerous towards the wooded sections of the country, but other small animals, such as badgers, prairie wolves, foxes,

skunks and gophers are very numerous. For description of climate, see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 37.—This township, which is situated 65 miles west of Saskatoon and 40 miles south of Battleford, is accessible by fairly good wagon trails from either place. Saskatoon is much the preferable supply station of the two, being situated upon the Prince Albert branch of the Canadian Pacific Railway, although the township is more easily accessible from Battleford, as the trail leading from that place is a very good one, and the distance considerably shorter. The old main trail from Battleford to Swift Current passes directly through the township from north to south. The soil varies from light sandy loam to heavy boulder clay, with clay subsoil, and being exceptionally well watered is very suitable for grazing purposes, although many sections of the township are also well suited for general farming purposes. The surface is open gently rolling prairie, although somewhat hilly in some sections. No timber of any description is found upon this township, but it possesses some exceedingly good hay land, especially along the valley of a small stream which has been named Crane creek, which traverses the township from the northeasterly part in a winding course through most of the central sections. Grassy sloughs or hay marshes were also found upon sections 10, 11, 20, 28 and 29. The largest body of water lies in section 35, and is slightly alkaline, although much less so than most other so-called alkaline lakes. Upon sections 2 and 3 a long narrow lake of salty water was found, but in addition to these there are numerous small fresh water sloughs or ponds well distributed over the township. The water of Crane creek is also sufficiently fresh for drinking purposes, although its volume is quite small, and during the driest seasons of the year it disappears entirely. No water-power of any importance can be developed in this township. No fuel supply is found in the township, but a convenient source exists in 'the 60-mile bush' a short distance to the south. Coal, stone quarries or minerals are not known to exist upon the township. Ducks of great variety are found upon all the lakes and sloughs in the township, while prairie chickens are also comparatively numerous. Small white geese may be seen in great numbers during the spring and autumn seasons, whilst the large geese also visit the locality in lesser numbers during the same season. Curlews and many varieties of plover are quite numerous throughout the district. Antelopes are occasionally seen, although these are more numerous towards the wooded sections of the country, whilst other smaller animals, such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate, see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 38.—This township is about 65 miles northwest of the town of Saskatoon and 30 miles south of Battleford, from which latter place it is easily accessible by the old wagon road leading from Battleford to Swift Current; this road passing directly through the township from north to south. Battleford is the nearest post office and telegraph station, but Saskatoon is the nearest railway depot. The soil varies from that of sandy loam to heavy clay, but everywhere it contains many boulders. The better sections of the township are suited for farming purposes, but the greater part being rough and stony is more suited for ranching land. The surface is open rolling prairie, being slightly hilly toward the northwest. It contains no timber or scrub of any description. The township contains some good hay lands, one particularly large marsh about 200 acres in extent upon sections 12, 13 and 14, adjoining a large lake. Another hay marsh of perhaps 150 or 200 acres in extent lies upon sections 27 and 28, while other smaller meadows were found upon sections 29, 30, 31, 32, 33 and 34. The valley of Crane creek, which passes through sections 14, 23, 26, 25 and 36, also produces a considerable quantity of marsh hay. The township is exceptionally well supplied with water, some of which, however, is strongly alkaline and unfit for domestic use. The largest lake in the township is, however, sufficiently fresh for drinking purposes,

although slightly saline. It lies upon sections 2, 10, 11, 14 and 15, and is both fed and drained by the stream known as Crane creek. The next lake in order of size lies in sections 30 and 31, but is strongly alkaline. There is another small alkaline lake at the junction of sections 29, 30, 31, 32, and another at the corners of sections 14, 15, 22 and 23. Besides these, a small lake of salty water lies on the line between sections 3 and 4. Fresh water ponds or sloughs are fairly well distributed over the surface of the township, being found upon sections 1, 2, 8, 9, 10, 14, 15, 17, 21, 22, 23, 29, 32, 33 and 34. Crane creek flows in a southerly direction through sections 36, 25, 26, 23 and 14. No water-power of any consequence exists in this township. No fuel is found upon this township, the most convenient supply being upon township 35, range 15. Coal is not known to exist in the locality, nor were minerals of value or any stone quarries observed during the survey. Prairie chickens are comparatively numerous, and ducks of great variety are found upon all the lakes and sloughs in the township. Small white geese may be seen in great numbers during the spring and autumn seasons, whilst the large brant geese visit the locality in lesser numbers during the same seasons. Curlews and many varieties of plover are numerous throughout the district. Antelope are occasionally seen, but are more numerous towards the wooded sections of the country, whilst other small animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 39.—This township is situated about 25 miles due south of Battleford, which is the nearest post office and supply station and about 75 miles northwest of Saskatoon, the nearest railway town. The old Battleford and Swift Current wagon trail passes through the westerly part of the township and affords ready access from the town of Battleford. The soil is clay and clay loam, and in places is very stony, and may be rated as second, third and fourth-class. It is, I consider, quite suited for the raising of general farm produce or for grazing land. The surface is chiefly open rolling prairie with no timber of any description, and very little scrub about the shores of some of the ponds or sloughs. Hay marshes are rather scarce, but over the whole surface a good growth of prairie grass was found. Both fresh and alkaline water are found upon this township in several small lakes and ponds, but neither is in very large quantities. The largest body of water is an alkaline lake of considerable area located at the southwest corner on section 6, but most of it is in the adjoining townships. Another much smaller alkaline lake lies on sections 18, 19 and 20, and small fresh water ponds are found on sections 4, 5, 9, 16, 29, 30, 31, 32 and 36. On section 36 is a fresh water lake extending into township 40, the second largest body of water in the township. The supply in the above mentioned lakes and ponds, although limited, appears to be permanent. No streams were found in the township, and I judge that very little if any, land in the township is liable to be flooded. The general indications are that the climate of this township is the same as those immediately adjoining it, that is, suited to admit of the raising of general farm produce or for ranching purposes. Summer frosts were not experienced during our survey of the township, but about the 9th of June, a few miles to the south of it, two summer frosts were experienced, which cut down many of the wild flowers and particularly the wild pea vines. It was said, however, by the old settlers of the district, that the season was a most exceptionally cold one. No fuel of any description is found in this township, the nearest available supply being on township 40, range 15, or the Red Pheasant Indian reserve. No coal or lignite veins are known to be in this locality. No stone quarries or minerals of value are known to exist in the township. The only large game is the antelope, although smaller animals such as badgers, foxes and wolverines are quite numerous. Ducks of many varieties are found upon all the ponds and lakes during their seasons of migration; geese are quite plentiful. Prairie chickens are scarce, there

being not sufficient scrub and willows to afford them food and shelter.—*J. W. Tyrrell, D.L.S., 1903.*

Township 40.—This township, which is only a fractional one, being cut into on the north side by both the Red Pheasant and Mosquito Indian reserves, is situated about 20 miles due south of Battleford, the nearest post office and supply station. It lies about 75 miles northwest of Saskatoon which is the nearest railway town. The Battleford and Swift Current trail passes through the westerly part of the township and affords easy access from Battleford. The soil is chiefly heavy clay, containing many boulders, though in some places, sandy loam is met with. For the most part the soil of this township might be termed third and fourth class. It is probably more suitable for ranching purposes than for general farming, as the soil is very heavy and stony and rather too much broken for purposes of cultivation, excepting perhaps, on the southerly sections which are more level than the rest of the township. The surface is very rough and hilly, particularly in the northern parts. It consists entirely of open prairie lands with very little scrub and no timber, excepting here and there a few very small poplar or willows surrounding some of the sloughs. Several of these sloughs surrounded by willows and small poplar were found on sections 17 and 20, adjoining the trail. Another surrounded by a fringe of willows was found upon section 12, the north boundary of the section crossing the same. A good many small hay marshes lie in this township, in the valleys between the many hills, but they are mostly of small area. Several are quite close to the Battleford trail on sections 17 and 20, others were observed upon sections 12, 22, 27 and 28. Numerous small fresh water sloughs are found throughout the hilly sections. The largest body of water is situated at the southwest angle of the township and consists of a small fresh water lake covering in all, less than a quarter section. This lake is quite deep and affords a permanent supply of water, as also do many of the sloughs in the other parts of the township. No streams were found and very little if any, of the land of this township is liable to be flooded at any season of the year. No alkaline water was met with in the township. The general indications are that the climate in this locality is not unsuited to the production of most farm crops commonly grown in the Saskatchewan district. Two summer frosts were experienced about the 9th of June, but it is generally admitted by everyone in that part of the country that the summer was an exceptionally cold one. No fuel supply exists in this township but plenty of dry wood can be readily obtained either from the Red Pheasant Indian reserve or the northern part of township 40, range 15. No coal or lignite veins were noticed in this locality. No stone quarries or minerals of economic value are known to exist in this township. Antelope are occasionally found while badgers, foxes and prairie wolves are quite numerous. Ducks of many varieties are very numerous upon all the ponds and during their seasons of migration geese may be seen in great numbers. A few prairie chicken were met with, but these birds are much more abundant a few mile farther north towards the edge of the woods.—*J. W. Tyrrell, D.L.S., 1903.*

Township 49.—From Battleford, Saskatchewan, we reached the township by going by ferry across Saskatchewan river, thence northwesterly by Onion lake trail for some 15 miles, thence branch to northward by Jackfish trail, skirting the east side of Jackfish lake for another 15 miles, thence branch to northeastward by Birch lake trail, which, about half way across township 48, range 16, crosses swampy land and is difficult to follow, then after a sharp ascent of 300 feet to the top of a plateau the trail becomes better and leads into section 4, thence northeasterly across this township. The trail is said to continue on to Birch lake some 15 miles to the northeastward. In the northern sections the soil is sandy, gravelly clay. In the central and southern sections, loam and rich clay. It appears most suitable for stock-raising, but if cleared and drained it would probably yield good cereal crops in the southern portion. The township is very undulating with many marshes and many deep ravines,

is nearly covered with small poplar and a dense growth of underbrush and scrub. Probably 80 per cent of this township is so covered. There is no commercial timber to speak of, a few poplar and cottonwood trees in the northern part would occasionally measure 12 inches in diameter. As a rule the large poplar would average from 5 to 7 inches in diameter. Hay grows freely in the numerous marshes and also shows well on the open sides of the ravines, but it is generally of a coarse nature. Water is plentiful, fresh and fairly good, chiefly found in ponds and small lakes. The only creek that appears likely to flow during the summer months is the one in sections 7, 17, and 18. The land is not likely to be flooded. There are no falls or rapids, nor is there volume enough in any stream from which power could be obtained. From the 15th to the 30th of May it was very windy—chiefly from the north, northeast and northwest—warm days alternated with blizzards of snow and cold raw weather. June was dry, cloudy and moderately warm and there were frequent summer frosts during the night. Poplar is the only wood available for fuel. This is also apparently obtained in quantities from townships further north—near Birch lake. There are no indications of coal and no stone quarries or minerals. Game—duck, prairie fowl and plover. No deer were seen.—*Sydney A. Roberts, D.L.S., 1903.*

Township 50.—The Birch lake trail runs through the eastern part of the township. It is a poor trail and but little travelled. The soil is generally a rich dark loam rather stony and is suitable for grain and vegetables. The surface is slightly undulating with large flats of marshy land inclined to be muskeg. It is almost entirely covered with brush and scrub, with scrubby poplar up to 18 inches in diameter scattered about; also a quantity of fallen timber, killed by forest fires in former years. The only timber is poplar and a little spruce, varying in size up to 18 inches in diameter. It is distributed in clumps over the township. Quite a quantity of good hay could be got in dry seasons in the marshes that are this year under water. The water is fresh and apparently permanent in the small ponds and sloughs throughout the township. Jackfish creek runs along near the north boundary of the township. This year it is a rapid stream about 25 links wide and a foot deep. A good deal of the low land adjoining sloughs is flooded this year with a foot or two of water through the surrounding brush. There are no water-powers in the township. No signs of summer frosts were observed. The first ice appeared on September 4. Heavy rains fell all summer. Poplar is the only fuel; it is scattered all over the township. There are no stone quarries and no minerals. The game consists of a few deer and ducks.—*T. S. Gore, D.L.S., 1903.*

Township 51.—(East and west outlines.)—On the northeast corner Birch lake occupies about 700 acres, and is the only large body of water touching this township. Birch lake extends far to the northeast into range 15 and covers probably 15,000 acres. Along the eastern boundary the land is rolling, with numerous ponds and sloughs. There is much good arable land and many large patches of scrub and small poplar, not much building timber, but plenty of fuel for a long time to come. The northern part of the township is flat and broken with marsh and sloughs. To the southwest are beautiful prairie slopes, with a few clumps of poplar and some patches of light scrub. Jackfish creek drains the southern side of this township, which may be considered to be about second class for agricultural purposes.—*J. J. Dalton, D.T.S., 1903.*

Township 52.—(East outline.)—The northeast corner is covered by a lake which extends several miles further to the north. On the southeast several sections are broken by Birch lake and a deep marsh from it; then Midnight lake covers several sections in the southwest quarter. The first two lakes have good streams running from them into Midnight lake, and are about 50 links wide and two feet deep. The land is generally covered with scrub, much of which is very dense. Hay and grass are inferior and not abundant. The timber from Midnight lake supplies largely the settlers at Jackfish for building, the spruce being large and abundant but not sufficiently so for

timber limits. There is nothing in this township to make it desirable for any special purpose.—*J. J. Dalton, D.T.S., 1903.*

(North outline.)—Across this range the ground is higher, and groves of pine 12 inches in diameter are frequently seen on the ridges. Section 31 is stony and covered with scrub poplar. In section 32 much of the timber, spruce and poplar is fire-killed. Some narrow belts of pine and spruce 10 inches in diameter and poplar eight inches in diameter still remain. Section 33 is heavily timbered with spruce and pine 10 inches in diameter. Section 34 and the western half of section 35 are covered with scrub and scattered poplar. Many boulders are also found on this section. The eastern half of section 35 and part of section 36 are covered with a large muskeg, three miles wide. This is followed by a belt of scrub poplar and bad windfalls one-half mile wide, reaching to the shore of Birch lake. The township corner falls within this lake. Two trails cross the base line in this range. The first one comes from a lake to the south and crosses fifteen chains east of the northeast corner of township 52, range 17, after which it possibly connects with the other, a well travelled trail which follows the southern shore of Birch lake, then taking a westerly direction crosses the base line 12 chains east of the corner of section 34, and appears to lead to the north end of Turtle lake. There is also a pack trail along the marshy western shore of Birch lake. The soil is a sandy loam with a subsoil of coarse sand, saturated with water.—*A. Saint Cyr, D.L.S., 1903.*

Range 17.

Township 35.—This township is situated about 70 miles west of Saskatoon and 50 miles south of Battleford, and is accessible from either place by fairly good wagon trails. The old Edmonton trail passes through the southern part of the township and the Battleford and Swift Current trail passes 5 or 6 miles to the east of it. Saskatoon is the nearest railway depot and Battleford the nearest post office and telegraph station. The soil varies considerably, ranging from sandy loam to clay loam and heavy clay, with clay subsoil, and seems well adapted for general farming purposes. The township is open, gently rolling prairie, which, however, is cut through in a northwesterly and southeasterly direction by two narrow valleys of from 75 to 100 feet in depth, which contain long, narrow, deep lakes of highly saline water. These lakes are rather remarkable in character, as they are not surrounded by broken or hilly country, but rather have the appearance of great, deep canals cut through the comparatively level prairie country, and being so narrow that they may be in many places approached to within a few yards before one is aware of their presence. Upon the southerly banks of these long, narrow lakes above described, there is a narrow fringe of small poplar trees, from 2 to 3 inches in diameter and from them a very limited amount of wood may be obtained suitable for fuel only. Few small natural hay marshes exist in this township, and none of any large extent, those noted being upon sections 8, 9, 16 and 32. The water in the two long, narrow lakes is very highly saline and unfit for drinking purposes. A third smaller lake of similar water lies in sections 10 and 11, and these three represent the only large bodies of water upon the township. Small fresh water sloughs, however, were found on sections 4, 5, 8, 9, 12, 16, 17, 24, 25, 29 and 32, and these though small appear to be of a permanent character. No water-power exists in the township. A very limited amount of fuel is found upon the steep southern banks of the lakes, where a fringe of young poplar is growing. Rather a remarkable feature in connection with the occurrence of these poplar is that they are all found upon the south banks of the lakes, not a tree upon the north banks, where upon the warmer, more sunny slope they might be expected to grow. In addition to the very limited amount of fuel found upon the shores of the lakes in this township the next most convenient supply exists in 'the 60-mile bush,' in township 36, range 16. No minerals

of economic value or stone quarries are known to exist upon the township. Prairie chickens are comparatively numerous. Ducks of great variety are found upon all the lakes and sloughs in the township, while white geese may be seen in great numbers during the spring and autumn seasons, whilst the larger geese also visit the locality during the same seasons, but in lesser numbers. Curlews and many varieties of plover are numerous throughout the district. Antelope are occasionally seen, although these are more numerous towards the wooded sections. Other smaller animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate see that given for township 35, range 16.—*J. W. Tyrrell, D.L.S., 1903.*

Township 36.—This township is situated about 70 miles due west of Saskatoon and 45 miles south of Battleford, and may be reached from either place by fairly good wagon trails. Saskatoon is the nearest railway station, but Battleford is the most convenient post office and telegraph station. The old Battleford and Swift Current trail passes through the township immediately to the east, and is only 4 or 5 miles distant. The soil consists chiefly of clay, which in many places, especially towards the north, is highly alkaline. The proximity of the township to the foul-smelling waters of Whiteshore lake renders it undesirable for general farm settlement, but it is not unsuited for grazing purposes. The surface is open gently rolling prairie, much broken towards the north by the irregular shore line of Whiteshore lake. No timber or scrub of any description is found. The township contains few natural hay meadows of any extent. The whole surface is, however, covered by a fairly good growth of prairie grass. This township, like townsnip 36, range 16, is well supplied with bad water, sections 24, 25, 26, 28, 29, 30, 32, 33, 34, 35 and 36 being wholly or partially covered by the foul-smelling waters of Whiteshore lake. The water of this lake is highly impregnated by hydrous sulphate of sodium and small percentages of magnesium sulphate and sodium chloride, and so strong is the odour that arises from this lake that with a favourable wind it may be scented for a distance of two or three miles. Besides this large lake, other smaller ones lie upon sections 27 and 28, and a few small fresh water loughs are also found on sections 8, 9, 16, 17, 20, 21 and 26. These latter, as well as the larger lakes, are all of a permanent character. No water-power exists in the township. No fuel of any description is found upon this township, the nearest available supply being in 'the 60-mile bush' upon township 36, range 16. No minerals of economic value or stone quarries occur in this township. Prairie chickens are comparatively numerous, and ducks of great variety are found upon all the lakes and sloughs in the township. Small white geese may be seen in great numbers during the spring and autumn seasons, and the large brant geese also visit the locality in lesser numbers during the same seasons. Curlews and many varieties of plover are quite numerous. Antelope are occasionally seen, but they are more numerous towards the wooded sections of the country. Other smaller animals, such as badgers, prairie wolves, foxes, skunks and gophers are very numerous.—*J. W. Tyrrell, D.L.S., 1903.*

Township 37.—This township, which is situated about 70 miles west of Saskatoon and 40 miles south of Battleford, may be reached by fairly good wagon trails from either place; but the distance from Battleford being much less than that from Saskatoon, and the trail being more direct and in better condition, it is by far the more convenient supply station. The old main trail from Battleford to Swift Current passes about 4 miles to the east of the township, and a branch from this old trail passes diagonally across the northwesterly part of the township. The soil is light, being composed chiefly of sand and sandy clay with clay subsoil, and should be well suited for general farming purposes, and especially for the raising of root crops. The surface is open gently rolling prairie, nearly level in some localities, with no timber or scrub of any description upon it. There are several small hay marshes in various parts of the township. One was observed on section 2, another on section 16, one upon section 17 and another on sections 19 and 30. The quantity of hay in these marshes is not

very great, and the quality is the same as that commonly found in all the hay marshes of the district. The only large body of water in the township is found upon sections 4 and 5. It is a portion of a long lake of exceedingly foul water. There are a number of small fresh water sloughs on sections 2, 4, 5, 8, 9, 16, 17, 19, 30, 31 and 32. No water-power exists in the township. No fuel can be obtained in the township, but a convenient supply is available in 'the 60-mile bush' in township 35, ranges 15 and 16. No stone quarries or minerals are known to exist in this township. Prairie chickens are comparatively numerous, while ducks of great variety are found upon all the lakes and sloughs. Small white geese or wavies may be seen in great numbers during the spring and autumn seasons, whilst the large brant geese also visit the locality in lesser numbers during the same seasons. Curlews and many varieties of the plover family are quite numerous throughout the district. Antelope are occasionally seen, although these are more numerous towards the wooded sections of the country, while other smaller animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate, see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 38.—From Battleford, at the beginning of May, I came out by the government road to the village of the Stony Indians. It was very wet in places but we had no difficulty in pulling through. From the village we took across north of Stench lake, but a much simpler route would be to keep along the government road farther south and cut across west, striking below Goose lake. The cut thus taken should be comparatively level. Soil is inclined to be sandy and stony, but if picked would be found suited for farming. Surface is all open undulating prairie. There is no timber nor hay in quantity. Water in smaller bodies is fresh and abundant. Goose lake is alkaline. The water supply is sufficient and permanent. On the westerly shores of Goose lake there is a fresh cold spring. There are no streams nor land liable to flood and no water-powers. Frost came about the 2nd of September. There were late snows in May and a rather damp season of drizzling rain. The nearest fuel is wood obtained from the neighbouring Indian reserves. No stone quarries or minerals were noticed. Geese, ducks and foxes were the game mostly seen.—*S. James, D.L.S., 1903.*

Township 39.—From Battleford I used the government road to the village of the Stony Indians. It was very wet in places, but we had no great difficulty in pulling through. From the village we took across north of Stench lake to township 40, range 17, but a much smipler route would be to follow the government road farther south and cut across west striking the more level part of township 39. The northerly and westerly portions of the township are very stony and hilly. But the hills have larger slopes than in township 40. Sections 1 to 14 are comparatively level and not so stony. These sections would make farms but the rest of the township is so hilly and stony that ranching would be the only suitable use for it. Here the many sloughs grow grass that comes in during the dry season when the grass on the hills is all dried up. There is absolutely no timber or scrub. There is no hay. Stench and Goose lakes are alkaline. The other bodies are fresh or nearly so. The supply is sufficient and permanent and there are also a large number of temporary sloughs. No land is liable to flood and there is no water-power. We had a late windy spring and frosts in first part of September, a season of drizzling rain. There is no fuel on the township; nearest wood is on the Indian reserve. No stone quarries nor minerals were seen. Duck and a few geese were noticed.—*S. James, D.L.S., 1903.*

Township 40.—From Battleford I used the government road to the village of the Stony Indians. It was very wet in places, but we had no great difficulty in pulling through in some shape. From the village we took across country to Stench lake and in the latter part of the journey found any possible route to be very crooked and hilly, both on account of the abrupt hills and the number of sloughs. The soil is rather

sandy and covered with stones and unsuited for cultivation. Surface very hilly, giving the appearance of a choppy sea. There are a few flat stretches to the north and west of Stench lake and to the north of Horse lake. There is no timber nor scrub and no hay. Stench lake is strongly alkaline. The other waters are fresh and there are several large permanent bodies and very numerous temporary ones. There are no streams nor land liable to flood. Snow fell for two or three days late in May and to a considerable depth (6 inches) but was soon melted in the sun. No fuel, stone quarries or minerals exist. Fox, coyotes and ducks were seen. Stock roam over the country and are able to get good grass where the many inequalities of the ground have held water in the spring, otherwise the grass is very poor.—*S. James, D.L.S., 1903.*

Township 41.—From Battleford the nearest route is by the government road or trail, which passes the Indian reserves and village of the Stonies to the east of the township. The road is in bad condition in wet weather and has some very bad wet spots, which, however, can be avoided. The soil is well adapted for farming purposes, but the land is broken by many sloughs, especially in spring. No scrub bush. No timber. No large hay flats. The water of the sloughs is fresh, and many bodies are permanent, as the five sections surveyed are lower than the surrounding country and the western ones may, therefore, be liable to flood. No water-power is available in the township. A heavy snowfall at the end of May was supposed to be a most unusual thing. The first frost came about 2nd September and was heavy. It was altogether rather a wet drizzling season, too cold for many mosquitos and quite windy. The fall was early, but no severe weather developed until after survey operations had been completed in October. Nearest fuel was obtained from Mosquito Indian reserve, but was of poor quality. No stone quarries, no minerals. Turkeys and ducks were seen.—*S. James, D.L.S., 1903.*

Township 49.—From Battleford, Saskatchewan, we went by ferry across the Saskatchewan river, thence by Onion lake trail for some 15 miles, thence branch to northeastward to Jackfish, thence by trail leading round east side of Jackfish lake, thence either northeasterly for three or four miles to the eastern side of this township by a trail leading to Birch lake or else from Jackfish northeasterly and northerly for about four miles to the western side of this township by the trail leading to Midnight lake. The bridge across Jackfish creek is unsafe for loaded wagons. The soil is chiefly a light gravelly sandy clay. In the southwest corner there is swampy low-lying land with black sandy loam. The township is apparently suitable for stock-raising, being very undulating, much broken by hills and ravines and about 70 per cent covered with scrub and young poplar, excepting in the southwest corner where the low-lying land is chiefly open grass and flat. There is no commercial timber to speak of. There are a few spruce up to 15 inches in diameter, a few poplar and cottonwood up to 10 inches in diameter in one of the ravines, otherwise the trees are all small poplar averaging from two to four and five inches. Wild hay grows freely in the swamps, but the general average is of a coarse nature. Water is plentiful, fresh and good, excepting in the southwest corner where a few ponds are impregnated with alkali. The larger swamps had ponds of good water in them. Jackfish creek, one chain in width, about six feet in depth, carries a good volume of sweet water and flows throughut the year, but the stream is sluggish and the land in its vicinity is liable to be flooded. There is so little fall in this creek (the only one of any size) that I should judge it would be difficult to obtain any power from it. The weather was very dry in June, but numerous heavy hail and thunderstorms came in July, with copious rain. There were several summer frosts in July. There is no coal; only small poplar and cottonwood; fuel of somewhat larger poplar is obtained from townships further north. No stone quarries or minerals were observed. One small band of red deer, probably wapiti, were seen in July. There were plenty of duck, plover and a few prairie fowl. From information it would appear that moose are occasionally shot by the Indians, also rabbits are snared. Remarkably

good vegetables were found growing in Louis Bourrit's garden in section 8, and he apparently had no difficulty in growing oats and roots in the bottom lands near his house.—*Sydney A. Roberts, D.L.S., 1903.*

Township 50.—The trail from Jackfish settlement to Midnight lake runs through this township from south to north. It is a good road except in wet seasons, when it crosses a good many boggy places. The soil is generally a good clay loam and is suitable for any ordinary products of the country. It is rather stony, however. The surface is all covered with poplar and willow scrub, and in many places poplar up to 10 inches in diameter. It is high and rather flat land, very soft and wet on the surface, broken on the west side of the township by ravines running into Jackfish creek. There is a large amount of fallen timber caused by fires. The only timber, except a little spruce in some of the ravines, is small poplar which is scattered all over the township. There is no hay land, though the grass is long and thick; it is interspersed with clumps of willow. The water in the sloughs and ponds is fresh but in dry seasons there would be very little. Jackfish creek runs through the northern and western parts of the township. This year it is about 25 links wide and from 2 to 3 feet deep and runs three or four miles per hour. There is said to be very little water in it after a few dry seasons. It contains good fresh water. There are no water-powers in the township. The climate is variable, very wet this year and cool, but no indications of summer frosts. The only fuel is poplar, scattered about the township. There are no stone quarries and no minerals. There was very little game seen, but there are a few deer.—*T. S. Gore, D.L.S., 1903.*

Township 51.—(North, east and west outlines.)—This township is altogether different in its nature from the one to the north. It is generally rolling prairie with numerous bluffs of poplar and patches of scrub and is suitable for general farming. Poplar is abundant for fuel and building timber and can be found conveniently. Maiden lake is the only body of water of any extent and occupies about 1,400 acres of sections 33, 34, 27 and 28. The northern part is broken largely with sloughs, but the south and southeastern parts are especially inviting for a person of agricultural tastes, with its beautiful slopes, occasional small ravines, excellent black loamy soil and its varied subsoil. This is altogether an agricultural township. Hay may be secured along the sloughs in the northern part of the township.—*J. J. Dalton, D.T.S., 1903.*

Township 52.—(East, west and south outlines.)—This township is cut on the west boundary by a lake which covers part of sections 12, 13, 18 and 19, destroying greatly the western halves of these sections. On the southeast we have what is known as Midnight lake, and in fact with the lake and marsh about five miles of the eastern boundary is taken up. This lake extends nearly to the western boundary but is finally drained by the southern branch of the Turtle lake river. Maiden lake cuts into the south boundary of this township for about one and three-quarter miles. The northern part of the township is largely ridges and muskegs with a few ponds and sloughs. A great area is covered with dense thickets of small poplar. There are several spruce bluffs and a few jackpine in the northeastern corner of the township. Hay may be secured in the vicinity of the lakes but nowhere else in quantity.—*J. J. Dalton, D.T.S., 1903.*

(North outline.)—Across this range lies a country of marshes and tamarack swamps, separated by hills of no great elevation but covered with bad windfalls. The only timber is small poplar and balm of Gilead on the high ground, while tamarack and a few spruce are scattered at intervals through the low lands of sections 31, 32, 33 and 34. At thirty chains east of the northeast corner of section 34 begins a belt one-half mile wide of spruce ten inches in diameter, intermixed with poplar eight inches in diameter. Here the windfalls are again met with and continue through section 36 to the northeast corner of the township. There is no trail crossing this bad tract of country. The ground slopes towards the marshes into which flow many small streams. Only a few unimportant streams flowing between marshes were crossed by

the base line. South of the line the country is open and slopes towards a deep depression in which are large bodies of water, running parallel to the base line. The soil is a black sandy loam, from four to ten inches deep, with a subsoil of clay or clay and stones. The hills are stony and gravelly.—*A. Saint Cyr, D.L.S., 1903.*

Range 18.

Township 35.—This township is situated about 80 miles west of Saskatoon, and about 60 miles south of Battleford, and may be reached from either of these places by fairly good wagon trails on what is known as the old Edmonton trail from Saskatoon, passing close to the southerly boundary of the township. Saskatoon is the nearest railway depot and Battleford the nearest post office and telegraph station. The soil is sandy clay with clay subsoil, but along the north boundary it is of a heavier character, and consists of heavy clay which might be suited either for farming or grazing purposes. The surface is open rolling prairie, which, however, is cut through by a number of parallel ravines, from 50 to 100 feet in width, which contain long narrow lakes of extremely saline water. These valleys have a northwesterly and southeasterly trend, and are of a remarkable character, having somewhat the appearance of great canals cut through the level prairie country. There is on the south banks of some of these salty lakes a very limited quantity of small poplar timber, not sufficient for building purposes, but of a size and quantity useful as fuel. 'The 60-mile bush,' in township 35, range 16, will provide a more extensive supply. No natural hay marshes worth mentioning were found upon the township, but the whole surface supports a fairly good growth of grass. All of the ten lakes which lie in this township contain extremely bitter saline water, quite unfit for drinking purposes. These were found in sections 2, 3, 10, 16, 17, 18, 20, 21, 22, 25, 26, 29, 30, 32, 33, 34 and 35. Besides these lakes, however, a few small fresh water sloughs were found, these being upon sections 1, 4, 5, 6, 10 and 13. No minerals of economic value or stone quarries are known in the township. Prairie chickens are comparatively numerous, and ducks of great variety are found upon all the lakes and sloughs. Small white geese may be seen in great numbers during the spring and autumn seasons, whilst the large geese also visit the locality in lesser numbers. Curlews and many varieties of the plover family are quite numerous. Antelope are occasionally seen, but they are more numerous towards the wooded sections of the country, whilst other smaller animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate, see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 36.—This township is situated about 80 miles due west of Saskatoon, and 45 miles south of Battleford, and may be reached by wagon trail from either of those places. The old main trail from Saskatoon to Swift Current passes about 10 miles to the east of the township, but a branch passes diagonally across the northwesterly part of the township, and therefore affords the most convenient access to and from Battleford, which is the nearest post office and telegraph station, Saskatoon being the nearest railway depot. The soil is chiefly clay loam or heavy clay, although on some of the central sections of the township a lighter sandy loam is found. The township is chiefly suited for farming purposes, more especially the raising of grain crops, such as wheat or oats. The surface is open gently rolling prairie, although on several sections hills of from 50 to 100 feet occur. It is very little broken by lakes or ravines. The largest bodies of water lie on sections 5 and 6 and upon 25 and 26. There is no timber of any description. There is a considerable quantity of marsh hay, the largest meadow being upon sections 26 and 27, which covers about 150 acres. Other smaller hay marshes are on sections 5, 15, 16, 21, 25, 27, 28, 33, 34, 35 and 36. Unfortunately, as on most of the other townships in this locality, the largest bodies of water are unfit

for domestic use. The lake occupying a southwesterly position in the township, and covering portions of sections 5 and 6, is composed of extremely bitter saline water, and the only other lakes of any size occurring upon sections 25 and 26 are also very alkaline in character. Numerous fresh water sloughs, however, exist in various parts of the township, although many of them become dry during the dry seasons of the year. During the month of August, when our survey of the township was made, fresh water was found in sloughs upon the following sections: 5, 15, 16, 21, 25, 26, 27, 33, 34, 35 and 36. No water-power exists in the township. No fuel of any description is found upon the township, the nearest available supply being in 'the 60-mile bush,' upon township 35, range 16. No coal, lignite veins or stone quarries are known to exist in this locality, nor any minerals of economic value. Prairie chickens are comparatively numerous, and ducks of great variety are found upon all the lakes and sloughs. Small white geese may be seen in great numbers during the spring and autumn seasons, whilst the larger geese also visit the locality in lesser numbers during the same seasons. Curlews and many varieties of plover are quite numerous throughout the district. Antelope are sometimes seen, but are more numerous towards the wooded sections of the country, whilst other smaller animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate, see that given for township 35, range 16, west of third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 37.—This township which is situated about 80 miles west of Saskatoon and 40 miles south of Battleford, may be reached from either of these places by fairly good wagon trails. Although Saskatoon, being on the line of the Canadian Pacific Railway, is the more advantageous supply station, Battleford being very much nearer is much the more convenient market town, and is also accessible by a better trail, namely, that leading from Battleford to Swift Current. The soil is clay and clay loam, and should, I judge, be suited for general farming purposes. The surface is open rolling prairie, with a few hills surrounding the large lakes within the township. The larger of these lakes lies within sections 16, 21, 22, 27 and 28, and the other upon sections 23, 10 and 11. In this latter lake there is a very conspicuous island covered with a dense growth of poplar which, however, because of its position in the lake, and the soft muddy character of the lake shore and bottom, it is almost impossible to reach. The isolated condition of the island no doubt accounts for the existence of the growing timber upon it, and would seem to indicate that similar forests might grow extensively throughout the country, were it not for the frequent visitations of prairie fires. This was the only timber found on the township, and is of little importance and not easily reached. The township is particularly favoured with natural hay meadows or marshes. A very large one lies upon sections 24 and 25, whilst others were found on sections 8, 9, 22, 23 and 27. Unfortunately the two fine large lakes within this township contain exceedingly bad water, the larger one occupying a central position in the township being exceedingly saline and bitter. The water of the smaller lake is strongly alkaline and unfit for drinking purposes. The only fresh water which we were able to find was in the grassy sloughs or hay marshes; however, by digging wells in these sloughs we were able to obtain a sufficient supply of good, fresh water. No water-power exists upon the township. The only fuel supply is that upon the island above referred to. A more convenient source is 'the 60-mile bush,' upon township 35, ranges 15 and 16. No coal is known to exist in the locality. No stone quarries or minerals of economic value are known to exist in this township. Prairie chickens are comparatively numerous, and ducks of great variety are found upon all the lakes and sloughs. Some white geese (wavies) may be seen in great numbers during the spring and autumn seasons, whilst the large geese also visit the locality in lesser numbers. Curlews and many varieties of plover are quite numerous throughout the district. Antelope are occasionally seen although these are more numerous towards the wooded sections of the country,

whilst other smaller animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 38.—From Battleford either the government road or the trail to Tramping lake could be taken. One is about the same as the other. In spring there might be difficulties by either route in the wet places, and in both there is a steep ascent to be made. The government road would probably be shorter, but to a stranger the other would be better because of two sets of pits, one directly in the trail, the other immediately to the right. The latter is a township corner, the northeast corner township 40, range 19. The soil is suitable for cultivation wherever the nature of the subsoil and the classing indicates the better qualities. The surface is prairie, with no scrub, only sufficient shrubs to make pickets, and no timber whatever. No hay in quantity is found. Aroma lake is alkaline. Horse-hoof lake is nearly fresh. The supply of water is fairly sufficient and permanent. There are springs in the ravines along the east shore of Aroma lake. There are no streams or land liable to flood and no water-power. A heavy snowfall came at the end of May, but was not a usual thing. First frost was about September 2, and was a heavy one. Rather a wet drizzling season, too cold for many mosquitoes. The nearest fuel obtainable was from the Stony Indian reserve. No stone quarries nor minerals were found. Ducks are found and some turkeys. Antelope frequent the ravines cutting into Aroma lake.—*S. James, D.L.S., 1903.*

Township 39.—From Battleford the trail to Tramping lake was found convenient. There is a steep ascent a little out of Battleford and in wet weather the trail becomes difficult, but otherwise it is satisfactory as an unimproved trail could be. There are two sets of pits directly on this trail, the latter set being at the northwest corner township 40, range 18. These form a useful guide to a stranger. The soil of this township is not everywhere suitable for farming, but could be used then for ranching. The surface is all prairie and only enough scrub for survey pickets. There is no timber and no hay in quantity. The water is both fresh and alkaline. The supply of fresh water is sufficient and permanent. There are no streams nor land liable to flood and no water-powers. There was a heavy snowfall at the end of May, but not supposed to be a usual thing. The first frost came about September 2, and was heavy. It was altogether a wet drizzling season, too cold for many mosquitoes and quite windy. The fall was early but no cold weather developed until after our work was finished. Nearest fuel obtainable was from Mosquito Indian reserve. The wood there is not any too good either. No stone quarries or minerals were seen. Ducks, turkey and antelope were all seen. The antelope frequent Aroma lake. To the east of Aroma lake is at least one spring not far from the shore and about one half mile up in the township. There is an ideal spring of ice cold water on the shore of Coldspring lake on section 13 of township 39, range 19, but it is very near the boundary and accessible from section 18 of this township. The spring is practically unlimited in its flow and wells up in several places, forming quite a marsh at the edge of the lake.—*S. James, D.L.S., 1903.*

Township 40.—From Battleford the trail to Tramping lake touches the northwest angle of this township. There is a steep ascent a little out of Battleford and in wet weather the travel becomes difficult, but otherwise it is as satisfactory as an unimproved trail could be. The set of pits for the northwest corner of this township lie as nearly on the trail as could be without actually occupying it and cannot but be observed by anyone using the trail. The soil is not very suitable for farming, not being of the requisite depth of loam while the surface is rather too hilly, though open. As a township it averages between a very hilly one like township 40, range 17 and a fairly level plain. The westerly half including the prominence known as 'Spy hill' is the rougher half. The easterly half has some hills, but each hill is isolated and surrounded by level ground. Only enough scrub for survey pickets. No timber. No

large hay flats. On section 35 are a large number of irregular areas or sloughs producing good grass and hay. The water of the sloughs is fresh and largely permanent although there are also some large sloughs, surrounded by small willows, that dry up. A good spring was found on section 3. Sections 34 and 35 may be liable to flood. No water-power. A heavy snowfall at the end of May was not supposed to be a usual thing. The first frost came about the 2nd of September and was heavy. It was altogether rather a wet drizzling season, too cold for many mosquitoes on the prairie and quite windy. The fall was early, but no severe weather developed until after the survey operations had been completed in October. Nearest fuel was obtained from Mosquito Indian reserve, but was of poor quality. No stone quarries. No minerals. Turkeys and duck were seen.—*S. James, D.L.S., 1903.*

Township 41.—From Battleford the trail to Tramping lake affords ready access to this township. The township is easily picked up from the trail, there being several sets of pits near the trail, and so prominent as to not escape observation by a person passing along the trail. The soil is suited for farming and the surface is not too hilly and is open. The scrub is only of requisite thickness for survey pickets. No timber. No large hay flats. There exists a large slough, said to have grown hay, on sections 14 and 23. The water in the sloughs is fresh and largely permanent. Sections 14 and 23 may be liable to further flooding if the slough encroaches still further on the dry area, but it seems rather that in dry seasons the slough might disappear. No water-powers. A heavy snowfall at the end of May was experienced, but it was not supposed to be a usual thing. The first frost came about September 2 and was severe. The season altogether was rather damp, and with the winds made it rather unpleasant. The fall was early, but got no headway until after our survey operations had been completed. The nearest fuel was obtained from the Mosquito Indian reserve to the east about ten miles. It was of poor quality. No stone quarries. No minerals. The game consisted of turkeys, duck, partridge and prairie chicken.—*S. James, D.L.S., 1903.*

Township 49.—Turtle lake trail crosses the southwestern part of the township and is a fairly good road, though but little travelled. It branches out from the Onion lake trail at the southwest end of Jackfish lake. The eastern part of the township is inclined to be sandy, but the western part is generally a good, dark sandy loam, suitable for grain and vegetables. The surface is very broken and hilly, all except a few sections in the southwest corner, and that part is much cut up with sloughs and ponds. The hills on the west side of Jackfish creek are cut by numerous steep ravines, sometimes nearly 200 feet deep, from many of which flow small spring creeks. About one-fourth of the land is covered with small poplar and poplar and willow scrub, the eastern half having the most open prairie. The timber consists of small poplar from two to eight inches in diameter, scattered throughout the township. The water is generally pretty fresh, though there is a little alkali in some of the ponds. Jackfish creek runs through the easterly part of the township. It is about 35 links wide and from one to six feet deep, with a current from two to six miles per hour. No flooding is liable to occur except of adjacent hay meadows. There are no water powers in the township. It has been very wet this summer, but there have been no frosts. The only fuel is small poplar timber scattered about. There are no stone quarries and no minerals. The game consists of ducks, prairie chickens and a few deer. The grass is plentiful and there is plenty of hay of good quality scattered throughout the township.—*T. S. Gore, D.L.S., 1903.*

Township 50.—This township is reached by the trail which runs north from Jackfish through the middle of the township. The soil is good clay and sandy loam, but is stony and only suitable for growing vegetables and grain in a small way. The surface is rolling and generally covered with willow and poplar scrub, brush and small poplar trees, with some stretches of open prairie. It is considerably broken with deep ravines. The timber is poplar, from 2 inches to 10 inches in diameter, scattered all

about, but thicker on the east half of the township. There is not a great quantity of hay, but there is a little scattered about in small patches. There is a thick growth of shorter grass with vetches everywhere. There is very little water in this township, and in a dry season I fancy there would be none except in Jackfish creek, which runs through the southeast part of the township. This creek is about 25 links wide, 18 inches deep, and runs about five miles an hour. It has good fresh water. There is none of the township liable to be flooded. There are no water-powers. The rainfall is abundant and no indications of summer frost have been observed. The only fuel is small poplar scattered about the township. There are no stone quarries and no minerals. No game seen, but there are said to be a few deer. This township is best suited for summer grazing.—*T. S. Gore, D.L.S., 1903.*

Township 51.—(East and west outlines.)—This township is a good farming country with good rolling surface and plenty of firewood, a good deal of building timber and good water, a fair depth of black loam soil and much prairie. Hay is plentiful on the southwesterly quarter of this township. Through the country described above there is no akaline water, stone quarries, coal, lignite nor petroleum. Water-powers might be available on either branch of Turtle lake river as these streams are very rapid in places. A few deer, one bear and a small number of game birds were all the game seen. The south branch of Turtle lake river may be forded on the bounday of range 19 and also about one-half mile east of the large lake in township 52, but is scarcely fordable at any other point.—*J. J. Dalton, D.T.S., 1903.*

Township 52.—(East and west outlines.)—The northern part is as rough and uninviting as that of township 52, range 19. The south branch of Turtle lake river in this township expands into a lake about three miles long by two and one-half wide, extending east of the line into range 17 about 50 chains, then spreading west over sections 24, 13, 12 and others. South of the lake there is good hay and grass land, deep loamy soil and rolling prairie with clumps of poplar and patches of scrub. Timber is abundant; on the north shore of the lake it is especially so.—*J. J. Dalton, D.T.S., 1903.*

(North outline.)—Turtle lake covers about one-third of section 31. On the eastern side of this lake the country is stony and much more open. It rises gradually from the lake shore and is covered at intervals with scrub which extends through sections 32, 33 and most of 34, where the country becomes marshy and poplar bush appears. In many places north of the line and not more than a quarter of a mile distant are belts of spruce, none of which, however, is over twelve inches in diameter. Sections 35 and 36 are mostly timbered with poplar and small clumps of spruce with heavy underbrush. Here the country becomes very wet. The soil, which is generally stony, is a sandy loam six inches deep with a subsoil of clay and stones. An old cart trail following close to the lake shore crosses the base line ten chains west of the quarter section post on the north boundary of section 31; while two very old trails leading probably directly across country to the upper end of the lake, cross within ten chains of the northeast corner of section 33 and on either side of it.—*A. Saint Cyr, D.L.S., 1903.*

Range 19.

Township 35.—This township is situated about 85 miles west of Saskatoon and 50 miles south of Battleford, and may be reached from either place by fairly good wagon trails, the old Edmonton trail from Saskatoon passing in an easterly and westerly direction across the southern part of the township. Battleford is, however, the more convenient post office and telegraph station, being considerably nearer than Saskatoon. The northerly sections of this township are chiefly composed of stony clay soil, but the remainder of the township is of a lighter character, consisting of sandy soil and

sandy loam which is probably equally well suited for farming and grazing purposes. The surface of the township like others immediately to the east of it is open rolling prairie, cut by several narrow parallel ravines 50 to 100 feet in depth. These ravines contain long narrow lakes of very bitter saline water quite unfit for domestic use. Upon the banks of some of these lakes a small quantity of poplar bush and willow scrub is found, but so insignificant in size and quantity as to be of little value. Nothing worthy of the name of timber is found upon the township. No hay marshes of any consequence are found. Seven lakes of considerable extent were found, all of them containing very bitter saline water, quite unfit for domestic use; however, a few small fresh water ponds exist, these being upon sections 1, 2, 15, 24, 25, 26 and 30, and all of them are of a permanent character. No water power exists in the township. A very limited quantity of firewood might be obtained from the banks of some of the salty lakes, but for any more extensive supply the nearest available is that in the '60-mile bush' on township 35, range 16. No rock in place or mineral of economic value was seen upon the township. Prairie chickens are quite numerous. Ducks of great variety are found upon all the lakes and sloughs. Small white geese (wavies) may be seen in great numbers during the spring and autumn seasons, whilst the large geese (brant) also visit the locality in lesser numbers. Curleys and many varieties of plover are quite numerous throughout the district. Antelope are occasionally seen but are more numerous towards the wooded sections of the country, whilst other smaller animals, such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate, see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 36.—This township is situated 85 miles due west of Saskatoon, and 45 miles southeast of Battleford, and is not difficult of access from either place, as fairly good wagon trails from both of the above mentioned towns pass within a short distance of the township. Battleford being much the nearer town is the most convenient post office and telegraph station. The soil is chiefly a heavy clay although in a few places a lighter sandy clay is found. The township is, I judge, best suited for general farming purposes. The surface is chiefly open rolling prairie, although several of the more central sections are decidedly hilly, the most hilly sections being numbers 11, 14, 15, 16, 17, 28 and 29. No timber or scrub of any description is found upon the township. A few small scattered hay marshes are found, but none of any large extent. A good growth of prairie grass, however, occurs all over the township. The township is well supplied with both fresh and alkali water as it contains a number of small lakes fairly well distributed over its surface. The largest of these lakes contains bad water and occupies portions of sections 28, 29 and 33, covering in all probably 200 acres. Other small alkali lakes occur upon sections 4, 5, 15, 16, 17 and 21, but several fresh water lakes also occur in the following localities: sections 4, 5, 9, 11, 12, 14, 16, 21, 23, 24 and 32. These lakes are all of a permanent character. No water-power occurs. No fuel of any description is found, the nearest available supply being in 'the 60-mile bush,' upon township 35, range 16. No coal or lignite beds are known to occur in this locality. No stone quarries occur, and no minerals of economic value are known of here. With regard to the occurrence of game in this locality it may be mentioned that prairie chickens are comparatively numerous. Ducks of great variety are found upon all the lakes and sloughs. Small white geese or wavies may be seen in great numbers during the spring and autumn seasons, whilst the large brant geese also visit the locality in lesser numbers during the same seasons. Curlews and many varieties of the plover family are quite numerous throughout the district. Antelope are occasionally seen although these are more numerous towards the wooded sections of the country, whilst other smaller animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN—RANGE 19.

Township 37.—This township is situated about 85 miles west of the town of Saskatoon and about 40 miles southwest of the town of Battleford and may be reached from either of these places by wagon trails; although Battleford being much the nearer of the two is the preferable market town and much the more convenient post office and supply station. The soil is chiefly a sandy clay and clay loam, and is, I judge, suited for general farming purposes. The surface is open, gently rolling prairie, with no trees or shrubs of any description. No timber of any description is found. Few hay marshes of any note were found, although the whole township is well covered with a good growth of prairie grass. One small hay marsh was found on section 2. The largest lake found upon the township lies in sections 5 and 8, and is in the form of a long, narrow slough, containing strongly alkali water. Situated precisely in the centre of the township upon sections 15, 21 and 22, there is, however, another long narrow lake containing exceedingly good water, and this forms the chief fresh water supply. Several other fresh water sloughs are found in sections 1, 2, 23, 24, 25, 27, 28, 31, 32 and 33. These all appear to furnish permanent water supply. There is no water-power in the township. No fuel of any description is found, the nearest available supply being in 'the 60-mile bush,' on township 35, ranges 15 and 16, or upon township 40, range 15, adjoining the Red Pheasant Indian reserve. No coal is known to exist in this locality. No stone quarries are found upon the township, nor any minerals of economic value. Prairie chickens are comparatively numerous and ducks of great variety are found upon all the lakes and sloughs. Small white geese or wavies may be seen in great numbers during the spring and autumn seasons, whilst the large brant geese also visit the locality in lesser numbers during the same seasons. Curlews and many varieties of the plover family are quite numerous throughout the district. Antelope are occasionally seen although these are more numerous towards the wooded sections of the country, whilst other smaller animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 38.—This township is situated about 90 miles westerly from Saskatoon, and about 35 miles southwest from Battleford, and is most readily accessible from the latter place, which is the nearest post office and telegraph station, Saskatoon being the nearest railway depot. The soil of the central and southerly part of this township is chiefly heavy clay, with clay loam in some places, but the northerly sections of the township are of a very sandy and gravelly nature, and of little value either for farming or for pasturage. The surface is gently rolling prairie, very level in places. A deep ravine of from 75 to 100 feet cuts across sections 3, 4, 9 and 8, and another small ravine cuts throught the northerly tier of sections. No timber of any description is found upon the township. A considerable quantity of hay is found in the central and more southerly sections, but the northern part is very barren, the soil being composed of sand and gravel. No large bodies of water are found, but a small fresh water stream flows through the ravine above mentioned upon sections 8, 9, 4 and 3, whilst other small fresh water ponds were found upon sections 5, 6, 7, 12, 13, 18, 19, 20, 22, 23, 24, 27 and 32. As these ponds were observed by me during the driest season of the year, it is reasonable to assume that they form permanent water supplies, although none of them are in themselves of any great volume. No water-power exists in this township. No fuel of any description is found upon the township, the nearest available supply being upon township 40, range 15, or in 'the 60 mile bush' on township 15, ranges 15 and 16. There are no stone quarries or minerals of economic value. Prairie chicken are comparatively numerous, and ducks in great variety are found upon all the lakes and sloughs. Small white geese or wavies may be seen in great numbers during the spring and autumn seasons, whilst the large brant geese also visit the locality in lesser numbers during the same seasons. Curlews

and many varieties of the plover family are quite numerous throughout the district. Antelope are occasionally seen, although these are more numerous towards the wooded sections of the country, whilst other smaller animals such as badgers, prairie wolves, foxes, skunks and gophers are very numerous. For description of climate, see that given for township 35, range 16, west of the third meridian.—*J. W. Tyrrell, D.L.S., 1903.*

Township 39.—The trail from Battleford to Tramping lake passes through this township. There is a steep ascent a little out of Battleford, and in wet weather travel becomes difficult, but otherwise it is as satisfactory as an unimproved trail could be. There are two sets of pits directly on this trail. The second set noticed coming from Battleford is the northwest corner of township 40, range 18. These pits form a useful guide to the stranger. The soil of this township is better than usual, and its quality was evidenced by an abundant crop of mushrooms in certain places, presumably where the buffaloes frequented. The soil would be suited for farming. The surface is all open prairie, nearly level. There was only enough scrub of the size to use for survey pickets, and there was no timber. There is a large hay meadow on section 6 extending as far as the eye could reach from the line. There is both fresh and alkaline water. The supply of fresh water is both plentiful and permanent. There is an ideal spring of ice cold water on the shores of Coldspring lake on section 13. The water wells up in several places, and forms quite a little slough, separate from the lake. No streams. Section 6 is largely liable to flood. At the time of the survey the water in the slough reached to a man's waist. No water-powers. (Flat lake reputed to have been dry long ago.) A heavy snowfall at the end of May was not supposed to be a usual thing. The first frost came about September 2, and was heavy. It was altogether rather a wet, drizzling season, too cold for mosquitoes and quite windy. The fall was early, but no severe cold weather developed until after our work was finished. Nearest fuel obtainable was from Mosquito Indian reserve. The wood there is rapidly rotting away. No stone quarries. No minerals. Duck, turkeys and antelope were all seen.—*S. James, D.L.S., 1903.*

Township 40.—The trail from Battleford to Tramping lake passes through this township, passing so close to the northeast angle of the same as to prevent anyone missing the pits. There is a steep ascent a little out of Battleford and in wet weather the trail becomes heavy, but otherwise it is as good as an improved trail could be. The soil is suitable for farming. Surface is open prairie nearly level. There is no scrub, simply a few bushes affording survey pickets, and no timber. A hay or grass marsh extends across the northerly part of section 11 and there is an expanse of about 80 acres in the southeast quarter of section 16. Water is all fresh or nearly so (Highbank lake water was used for making tea). Fresh water supply is sufficient and permanent. No water-power. The heavy snowfall at the end of May was supposed to be an unusual thing. The first frost came about the 2nd of September, and was heavy. It was altogether a rather wet, drizzling season, too cold for many mosquitoes, and quite windy. The fall was early, but no severe weather developed until after our work was completed. Nearest fuel obtainable was from Mosquito Indian reserve. The wood there is rapidly rotting away. No stone quarries. No minerals. Duck and prairie chicken were plentiful.—*S. James, D.L.S., 1903.*

Township 41.—The trail from Battleford to Tramping lake passes through the southeast corner of this township where the pits are immediately alongside the trail. There is a steep ascent a little out of Battleford and in wet weather the trail becomes difficult in some places, but otherwise it is satisfactory. Soil is suitable for farming. The surface is all open prairie nearly level. There is no scrub but a few sufficient to supply survey pickets. No timber or wood, no hay marshes. The water of Narrow lake is somewhat alkaline, but other bodies are fresh. The supply of fresh water is sufficient and permanent. No water-power. There was a heavy snowfall at

the end of May, but it was not supposed to be a usual thing. The first frost and a heavy one came about the 2nd of September. Rather a wet drizzling season was experienced but the fall was fine and not very cold. Nearest fuel was not of the best and was obtained from the Mosquito Indian reserve. No stone quarries. No minerals. Duck and prairie chicken were common.—*S. James, D.L.S., 1903.*

Township 42.—From Battleford a trail passes through the northwesterly part of this township and affords convenient access to it. This trail is in as good condition as could be expected, and presented no difficulties at this time of year. The soil and grass of the township were better than usual and the township is good for farming. The surface is all open prairie and not quite level. No scrub of any size, just a few clumps of bushes were seen and no timber. On sections 2, 10 and 11, and extending into 14, a large shallow slough producing hay was not considered to require traversing. Water is fresh and abundant. Probably springs could be found on the draw that seems to be a creek in wet seasons. The supply of water is fresh and permanent. No special areas seemed liable to flood. No water-power. Heavy snowfall at the end of May, but not supposed to be a usual thing. First frost came about September 2, and was heavy. It was a wet drizzling season and windy. The fall was not severely cold. The fuel used (supposed to be nearest) was from the Mosquito reserve. The wood there, however, is rapidly rotting and was somewhat punky. No stone quarries. No minerals. Prairie chicken, partridge and duck were the game usually seen.—*S. James, D.L.S., 1903.*

Township 48.—The trail from Battleford to Onion lake runs through this township. It is a good road. The soil varies from sand to dark sandy loam, and is suitable for general farming and dairying. The eastern third of the township is rolling sandy land, but the rest of it is fairly level. It is prairie with scattered clumps of brush and small poplar. The only timber is small poplar from two to eight inches in diameter scattered about, but principally on the east and southwest portions of the township. There is good hay scattered all over the township on the low ground adjoining the sloughs. The water is generally fresh and apparently permanent in most of the small lakes and sloughs. Turtle river touches the west boundary, and this year is five or six feet deep and about one chain wide, running about four miles an hour. The water in it is good. The land is not liable to be flooded. There are no water-powers. It has been a cool, wet summer this year. There are no indications of summer frosts. The only fuel is small poplar from the bluffs scattered about. There are no stone quarries and no minerals. Ducks and prairie chickens were the only game seen.—*T. S. Gore, D.L.S., 1903.*

Township 49.—The Battleford and Onion lake trail touches the southwest corner of this township and the Turtle lake trail, which branches off from the Onion lake trail at the southwest end of Jackfish lake, enters this township on section 13 and goes out on section 35. They are both fairly good roads. The soil in the eastern half of the township is light and sandy, in the western half it is fairly good, but is much broken by sloughs and soft boggy marshes. It is suitable for grazing and hay. The township is about one-third brush and small poplar and willows. The surface is genereally rolling. The timber is scrubby poplar from two to eight inches in diameter, and is scattred in clumps throughout the township. There is plenty of good hay on nearly every section. There is a small stream of good water about 15 links wide, running south through the westerly tier of sections from section 31 to section 18, and also a stream about the same size, running south through the easterly tier of sections, and a nice fresh water lake on sections 23 and 24, with sandy shore and bottom. There are small ponds scattered all over the township generally with fairly good water. There are some alkaline ponds and sloughs. There are no water-powers. The weather this summer has been very cool, with a good deal of rain. No indications of summer frosts were noticed. The only fuel is small poplar scattered through the township.

There are no stone quarries and no minerals. There are plenty of ducks, prairie chicken and deer.—*T. S. Gore, D.L.S., 1903.*

Township 50.—Turtle lake trail runs north through this township from section 2 to section 35. It is a fairly good road, though but little travelled. It leaves the Battleford and Onion lake trail at the southwest end of Jackfish lake. The soil is generally a rich clay loam, inclined to be stony where the land is rolling. It is suitable for mixed farming. The surface is rolling on the south and west parts of the township and very broken and rough near the creek which flows south between the two most westerly tiers of sections, and in the eastern and northern parts of the township flat and marshy. It is about one-third covered with small poplar and willows and brush, most of it being on the west half of the township. The timber is scrubby poplar from two to eight inches, mostly on the west half of the township. There is a quantity of good hay, nearly half the area of the two easterly tiers of sections being hay land; there is also a good deal scattered about the rest of the township. There are numerous small ponds of fresh water scattered throughout the township, and a stream of good water about 15 links wide runs south along the line between the two westerly tiers of sections and a small stream which does not run all summer, flows south between the two easterly tiers of sections. There are no water-powers. It has been a cool wet summer this year. There are no indications of summer frost. The only fuel is small poplar scattered about the township. There are no stone quarries, and no minerals were discovered. There are plenty of prairie chickens and ducks and a few deer. The township is better suited for stock-raising and dairying than for grain-growing.—*T. S. Gore, D.L.S., 1903.*

Township 51.—(East and west outlines.)—There is much prairie along the eastern boundary and the whole township is more open than the one to the north. It is also better adapted for either agriculture or cattle ranging. There is a good supply of hay and plenty of firewood but very little building timber, though on section 19, east of said boundary, there is a nice spruce bluff. The land is rolling with a good average black loam soil and light subsoil.—*J. J. Dalton, D.T.S., 1903.*

(Subdivision.)—Turtle lake trail runs through the eastern tier of sections in this township. It is a fairly good road. The soil is variable, inclined to be gravelly in the higher land and heavy loam and clay in the flats. It is suitable for vegetables in places. The southeastern third of the township is nearly all marsh and hay land, with a few clumps of willow and poplar brush scattered through it; and the portion lying north and west from a line from section 36 to section 5 is undulating and covered more or less with willow and poplar brush, and in some places poplar and scattered spruce up to 14 inches in diameter. The timber is scrubby poplar and a little spruce up to 14 inches in diameter scattered through the northwestern half of the township. There is a quantity of hay all through the southeastern portion but of rather poor quality. The water is in shallow ponds and marshes and is not very good; it probably contains a little alkali and is very hard. Nearly all the southeastern portion described as marshy is liable in wet seasons to be covered with a foot or two of water. There are no water-powers. The climate is variable, not very liable to summer frosts. The only fuel is poplar from bluffs in the northwestern two-thirds of township and from adjoining townships. There are no stone quarries and no minerals. The only game is ducks and snipe. This township is only suitable for dairy farming, or cattle ranching on a small scale.—*T. S. Gore, D.L.S., 1903.*

Township 52.—(East and west outlines.)—Turtle lake cuts deeply into the northeast corner of this township destroying several sections. The lake is beautiful, extending for miles to the northeast. Some say that it is 25 miles long. It abounds in fish, has beautiful bluffs of spruce around its shores and is generally a very interesting sheet of water. The land is very inferior along the eastern boundary and north of the south branch of Turtle lake river, where the soil is shallow and the country

scrubby. South of the river there are 200 or 300 acres of good prairie with deep black loam and light clay subsoil. This township has plenty of poplar for fuel and some spruce for building timber. Hay is not abundant.—*J. J. Dalton, D.T.S., 1903.*

(North outline.)—Turtle lake lies in the northeast corner of this township. Section 31 is broken by hills. Through sections 32 and 33 the land is tolerably level, though stony in places; it is covered with bluffs of poplar and balm of Gilead surrounded by thick windfalls. Section 34 is rolling and from its northeast corner to the western shore of Turtle lake, the soil supports a forest of poplar 6 to 8 inches in diameter. Section 36 and a narrow strip of section 35 lie in Turtle lake, which extends 6 miles north of the line, with a deep bay to the northeast, and about 2½ miles south of it, where its outlet, Turtle river, begins. The shores of this lake, like those of many other large ones of this district, appear to be formed by a jetty of boulders which have been shoved and piled 5 or 6 feet high by ice pressure, and have become cemented together, forming now a kind of natural high road between the lake proper and marshes adjoining it. This jetty, from 5 to 10 feet wide, is always timbered with birch, poplar and cottonwood. No timber of commercial value was seen near the lake in the vicinity of the line, but quantities of large sized logs (spruce, poplar and pine) are afloat near its shore. These would indicate that there must be near its northern extremity some fine timber, but for some reason these logs were not taken out, though Turtle river would seem to be a good stream for that purpose. The soil in this township is a sandy loam, 6 to 9 inches in depth, overlying a clay or clay and sand subsoil.—*A. Saint Cyr, D.L.S., 1903.*

Range 20.

Township 35.—At present this township is most easily reached by travelling west along the old trail near the 9th correction line from the military trail between Battleford and Swift Current. Tramping lake intersects this township in a valley from 100 to 200 feet deep, with that exception, the surface of the country is rolling prairie. The soil is first and second class, and is eminently adapted for wheat-raising. On the sides of the hills around Tramping lake some timber (mostly poplar and maple) is met with, but not in sufficient quantity and size to afford building material. There are no large hay meadows in this township. Besides Tramping lake another small lake has been surveyed on section 24. There is no running water sufficient to furnish power in the township. Excepting the small amount of timber around Tramping lake, there is no fuel in the township. There are no stone quarries in the township. Mines and minerals there are none. There are ducks and chicken and a few antelope in the township.—*H. B. Proudfoot, D.L.S., 1903.*

Township 36.—This township is most easily reached by the trail from Saskatoon, which passes about 6 miles south of the southerly boundary. The soil is all clay loam, with an alluvial deposit of black loam. With the exception of a few bluffs of poplar and maple on the east bank of Tramping lake, there is no timber in the township. There is no running water; the water in the sloughs is fresh, but in Tramping lake very alkaline. The climate is good, a few frosts during survey, but nothing that would hurt grain. The only fuel obtainable is the dead maple and poplar on the east bank of Tramping lake. There are no stone quarries or minerals. Geese, ducks and prairie chicken are the game to be found.—*H. B. Proudfoot, D.L.S., 1903.*

Township 37.—A trail from Battleford passes through the northwest corner of township 38, range 20, which affords the easiest way of reaching this township. The soil is all clay loam or black loam, a first-class wheat country. With the exception of the east shore of Tramping lake, there is no timber whatever in the township. This timber at Tramping lake is mostly fire-killed. Hay can be cut around the few sloughs. The water in the small lakes and sloughs is fresh, but in Tramping lake is very alka-

line. There is no water-power. Some frosts were noted during the survey (August), but I do not think the country is liable to summer frosts. With the exception of the timber above noted at Tramping lake, no fuel is available. There are no stone quarries or minerals. Antelope, duck, geese and prairie chickens are seen.—*H. B. Proudfoot, D.L.S., 1903.*

Township 38.—A trail from Battleford in very good condition passes through the northwest corner of this township, affording the most convenient route for reaching it. The soil is generally clay, with an alluvial deposit of black or clay loam, an excellent wheat country. With the exception of the valley of Tramping lake, the surface is all prairie, rolling, undulating or level. There is a small quantity of timber, mostly dead, along the east side of Tramping lake, and in some of the ravines on the west side. Hardly any of it is suitable for building purposes. Hay can be cut around most of the sloughs. There are no hay marshes of any extent, and the prairie grass is both short and thin. The water in the small sloughs is mostly fresh, but in the lakes is very alkaline; no running water was met with. In the beginning of September the nights began to turn frosty, but the days were fine. The only fuel available is the limited supply of timber around Tramping lake. No stone quarries or minerals were found. Game,—antelopes, ducks and geese.—*H. B. Proudfoot, D.L.S., 1903.*

Township 39.—This township lies to the southwest by south of Battleford, and is crossed by the Cypress trail from sections 24 to 4, and as this trail is a very good one, this is the best way to it, the distance from Battleford being about 32 miles. The soil in this township is principally a strong clay loam, of most excellent quality, suited admirably for the production of all ordinary farm crops raised in Canada. The township is entirely in prairie country, there being no wooded growth anywhere in it. The surface is generally of a gently rolling or undulating character. There are no extensive meadows, but I fancy from appearances (I was there rather too early to judge well) that a good deal of hay largely of upland grass might be cut bordering the marshes found in the township, of which there are quite a number, though none of them are very large. Water was quite plentiful when I was there in early June, and I fancy quite a good deal of it permanent, and good and sweet, except that found in Crooked valley, a wide deep ravine, along which flow the headwaters of Eagle creek. The water in this stream and that in the marshes and brooks connected with this valley are saline and disagreeable, though it would be all right for watering stock. As to water-powers, the only possibility of such a thing would be by a barrage or dam across Crooked valley just mentioned. This valley is about 6 miles in length in the township, and would average nearly half a mile in width, with a depth at the west below prairie level of say 60 feet, and 90 feet where it leaves the township. A dam to hold this trough full of water would be a very expensive affair by reason of the earthy banks, the cost being much too great to make it a practical scheme, beside which my opinion is that it would take the rainfall of at least two years to fill it up. If a structure of this kind were contemplated the proper place at which to put in the retaining structure in this valley would not be in this township, but at a point about 20 miles to the south, where the level of the country descends from the third to the second prairie steppe. This would create a lake of about 15 square miles and with a depth of not less than 60 feet if full advantage of the situation were taken. By reason of the light rainfall in this district one-third only of the volume of water thus held in would probably be the yearly supply. The general indications as to climate are that humidity is short and frostiness somewhat long. I do not consider the district good for grain, but as a summer range for stock it could not be surpassed; the pasture is exceptionally good. There is no fuel in the township that I know of, nor any nearby, nor any exposures of coal or lignite. No rock exposures were seen, so that in all probability no quarries could be developed. Great numbers of large stones (boulders) lie all along the sides of Crooked valley, from which large quantities of building stones could be

manufactured. A considerable proportion of these stones are of limestone and marble, and if fuel could be gotten splendid lime could be made from them. No valuable minerals were seen. Antelope were quite numerous, and immense numbers of ducks, geese, swans, &c., congregate in the lakes and marshes in Crooked valley. The only stream in the township, named Eagle creek, is here very small, and would be represented by a flow of water 3 feet wide, 10 inches deep and one-half mile per hour on June 1, and probably nothing at all on September 1.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 40.—This township is reached most easily from Battleford by the Cypress or Red Deer Forks trail which passes close to its southeast corner. The distance from Battleford is about 30 miles, and the trail is good. The soil throughout the township is good, being largely clay loam of splendid quality and eminently fitted for the growth of all usual farm crops grown in Canada. The surface is prairie, mostly of a gently rolling character, with some ridgy country. Some stony ground was seen and generally stones can be seen almost anywhere in the township. This, however, is no detriment, but the reverse, as in the erection of all kinds of buildings these stones would prove of great value in a district so bare of timber as this is, beside which even when plenty of timber and lumber is to be had, the foundations of buildings must be built on something more durable, and here is where the stones mentioned would come in. There is no timbered growth in this township whatever. Considerable hay ground exists on sections 35 and 20 along lakes Nos. 1 and 3. I could not judge very well as to quantity that might probably be gotten here, as it was too early in the season when I was there, but there would be some hundreds of tons, no doubt. Water, of which the supply seems ample, is fairly well distributed and apparently permanent and the quality is good except in lake No. 2, sections 34 and 35, which is extremely saline and disagreeable. There are no streams, and of course no water-powers. The general climatic indications are dryness and frostiness. No fuel is readily to be had of any kind. No veins or seams of coal or lignite were seen. No exposures of rock exist in the township and thus no likely places for quarries could be pointed out. No minerals of any economic value were found. A few antelope were seen and immense numbers of ducks, plover and other water fowl swarmed in the several lakes found in the township.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 41.—This township is most easily reached by way of the Sounding lake trail from Battleford, taking this trail out for about 20 miles, where a more southerly trail forks off passing across the northwest part of the township; the distance to the central point of the township from Battleford is about 28 miles. The soil in the township is very varied in character, there being some excellent clay loam and sand loam, and considerable saline land, with poor soil. As a whole the township is much better suited for grazing than for grain growing. The surface is entirely prairie with no wooded growth whatever. There are no large hay meadows, but scattered over the township are small ones from which considerable hay may be cut. Water is fairly well distributed, that in the central part of the township from north to south being saline, the water elsewhere is very good and fresh. There are no permanent streams and no water-powers. I believe that frosts occur in summer in this locality. The climate from such evidence as can be seen is very dry, the elevation of this part of the country being the cause no doubt. No fuel of any kind is available in the township, and I did not learn that any considerable quantity was to be had anywhere near by. Neither coal nor lignite was seen, nor were any indications of them discovered. No beds of rock were seen nor exposures of anything of a rocky nature noticed. It is not probable that quarries of stone exist in the township. No minerals of an economic nature were seen. Vast numbers of ducks in the salty marshes in the central part of the township were the only thing of the game kind seen.—*Fred. W. Wilkins, D.T.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN—RANGE 20.

Township 42.—As the Sounding lake trail from Battleford passes centrally from east to west through this township, this is the best way to get to it. The distance from Battleford is about 20 miles and the trail is good. The soil throughout, with the exception of a little saline land on sections 4, 32 and 33, is good, being clay and sand loam of splendid quality, suitable for the growth of any crop grown in Canada. The surface is entirely prairie, there being no wooded growth whatever. There are no extensive hay meadows, but quite a bit of hay, both of the kind called slough hay and upland hay can be obtained here and there scattered over the township. There is one small stream (not running at the time of survey in August) in the township passing from south to north near the east side. The water in this (in pools) is not good, though it would be wholesome enough for stock, but the rest of the water met with is fresh and good. The supply is fair and apparently permanent and fairly well distributed, so that without doubt a good summer range for cattle, &c., could be had here. There are no water-powers in the township, nor any prospects that they could be developed by the building of dams. From appearances I would expect the summer in this locality to be generally very dry, and frosts, I fancy, would not be unknown, as the elevation is considerable. There is no fuel of any kind in the township, nor any readily to be obtained that I know anything of. No seams of coal or lignite were seen. No exposures of rock were noticed, nor any places where quarries might be opened. No economic minerals of any kind were seen. A few ducks comprised all the game met with.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 43.—This township can be most easily reached by the Sounding lake trail from Battleford. The trail is followed for about 14 miles when it is left on the left hand and a due west course is taken over smooth prairie for about six miles when the township is reached near its southeast corner. The travel is good all the way. The soil is about equally divided between clay and sand loam, with some saline land, and in general is good and suitable for any crops ordinarily grown on farms in Canada. The surface of the township is practically all prairie of an undulating or gently rolling character in general, the exceptions to this being the valley or ravine of Cutknife creek, and a range of hills in the central part known as the Sliding hills. There is no wooded growth in the township, except some patches of thick brush and willows along Cutknife creek, on the northeastern part of the township, and the area covered by this is confined to a few acres. There are no large hay meadows, but quite a bit of hay could be got at some small ones, which are found here and there all over the township. Water both fresh and brackish is found all over the township in fairly good suppply, and is permanent. Cutknife creek ceases to flow in the latter part of the summer, but abundance of water, a little brackish in flavour, is found in pools all along. This stream is the only real stream in the township, and passes across it in the central part from west to east, turning northerly. No useful water-power could be made in the township, the supply of water being too precarious. On account of the elevation (third prairie steppe), my opinion is that frosts occur too frequently during the summer for successful grain-raising. A limited quantity of wood (poplar) exists in the township (44) to the north of this one, but is not readily gotten at by reason of the valley or ravine of Cutknife creek, which is very difficult to cross. As it is, this wood will not be long available, as it is practically all dead and dry, and mostly lying down. The next prairie fire will probably sweep it all away. There are no coal seams or lignite seams exposed in the township. No rock of any kind in beds was observed, and therefore it is not probable that stone quarries could be opened up. Surface stones were plentiful in some places and generally quite a few are seen everywhere. These could be utilized for masonry work by splitting them. No useful minerals were observed, and it is not likely that any exist in the township. Ducks of several different kinds and prairie chickens (pin-tailed grouse) were plentiful. This township is an excellent one for grazing, and would make a good summer range for cattle or horses,

as it is generally far enough away from the bush to be free of black flies, which are a dreadful pest in the more wooded parts of the country. Mosquitoes are very plentiful though.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 44.—This township lies a little to the north of west from the town of Battleford, the central point for the district in which it lies and its nearest point is distant from that place about 20 miles. To reach it I would prefer to go out southwesterly from Battleford as a starting point by the Sounding lake trail, following the same about 15 miles, then turning off to the right travel in a due northwest course about nine miles over the prairie when the locality of the southeast angle of the township will be reached just to the east of the elbow of Cutknife creek. From here all the northern part of the township (north of sections 1 and 6) can be reached more or less readily, that is the part north of the creek. To reach the southerly tier of sections is another matter; for the ravine of Cutknife creek lies between and it is not easy to cross it with a prairie outfit. I fancy a way could be found just at the elbow, to get down into the bottom and out of it up a slope on section 2, a little bit west of the quarter section pits on the east side of this section. Otherwise I do not know of any place in a township where a crossing can be effected. Failing this the only alternative is to turn to the southwest from the elbow and travel about 6 miles passing over the northern end of the Sliding hills in township 43 in this same range. Here a crossing can be made of this same Cutknife creek, which has bent around in its upper part up this way also, and then travelling due north about 4 miles, sections 4 and 5 of the township under discussion will be reached. It will be seen by this that this township is exceedingly divided into two parts (the southerly tier of sections from the rest) by the ravine or valley of the creek first mentioned. The stream is small but during the course of ages has evidently worn out of this high country an awful ditch to drain through. It empties into Battle river about 15 miles northwest of the point I have called the 'elbow,' and for about 15 miles of its course flows through what might almost be called a canyon until it issues from the third prairie plateau (Eaglehill) in section 22, township 44, range 21. In the southern two-thirds of this township the soil is splendid (a clay loam) and there is not any better lying out of doors. The north third at the foot of the escarpment of the third prairie steppe is simply a sand bed thrown up by the wind, into more or less high knolls, ridges, or banks, and the soil here is practically useless. In the first mentioned part of the township the soil is most suitable for any agricultural purpose. The southern tier of sections (2 to 6) except section 1 which lies mostly in the canyon of Cutknife creek and is mostly gently undulating prairie and the southern part of sections 26 to 30 is also a prairie tract, the balance of the township is in what would be called park country, about one-sixth of the surface being taken up with patches or islands composed largely of willow bushes intermixed with small poplars, the growth being apparently about eight years old. A good deal of dry wood mostly lying down is found in some of these patches, and judging from this and the fact that there is also a thick mat of old dry grass of several years production, beside the living grass growing up through it, I would suppose that seven or eight years ago a prairie fire had been over this spot and had killed the wooded growth (the dry trees were in size up to about 9 inches diameter) then existing, and the present growth had sprung up since. None of the new growth is as yet of a useful size and the chances now are that it never will be. The coming in of land hunters and others before unknown, will surely be the cause of fire again shortly, and then, as there is so much that is dry to burn, everything in the way of wooded growth will be swept away. This foregoing applies particularly to the middle part of the township where the soil is good. In the northern part where the soil is so light and sandy the wooded growth is more open and the groves of poplar found larger (up to 8 inches in diameter), but scrubby in growth. As these patches of bush in these parts are mostly isolated by open sand beds with no growth of grass, fire is not liable

to damage the little wood there is here. Also in the canyon of Cutknife creek are a good many patches of brush (willows and small poplar) with a few small groves of larger stuff, say up to 8 or 9 inches in diameter, but the quantity is small. There is nothing in the township in the way of timber that would be worth while to reserve for any purpose, firewood (limited in quantity) is all there is with a few fence rails and a few building logs, and these latter all but inaccessible in the gorge of the creek mentioned. There is no hay land in the township—I mean by this, natural hay meadows. There is an abundance of water in the township and practically it is all good and fresh. Along the north boundary of the township are several good sized lakes, having in them the very best and clearest water I have ever encountered in the Northwest Territories. I believe these lakes have fish in them for I picked up a minnow on the shore of one of them, but of what kinds I can say nothing. They are lovely sheets of water with long stretches of lovely sand beach. There are no natural places for power on the one stream (Cutknife creek) in the township, but the canyon through which it flows could be dammed say near the west boundary of the township and a pond made of perhaps 15 miles in length (running back into township 43, range 20) on an average of 30 chains wide, with a depth ranging from a few inches at the upper end to from 80 to 100 feet at the dam. The supply of water would be, say three times the lowest stage, which this year was a stream 3 feet wide, 6 inches deep, 1 mile per hour. However, the better use to which this stream could be put I fancy would be to furnish water for irrigation along the valley of Battle river, where there is without doubt land that can be reached by this stream. The general indications as to climate are great dryness and a liability by reason of elevation (third prairie plateau) of summer frosts. Sufficient fuel in the way of poplar wood exists practically everywhere in the township for immediate settlement, but as to the whereabouts of a permanent supply I cannot speak. No veins or seams of coal or lignite were discovered. No minerals of any economic value were seen and no places where quarries of stone could be opened up. As to game a few jumping deer were seen in the canyon of Cutknife creek and plenty of ducks in all ponds and lakes, with some black geese and some swans. Very few prairie fowl were seen.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 49.—This township is reached by the Onion lake trail from Battleford, which runs through it from section 13 to section 31, and is a good road. In the southern part of the township the soil is light and sandy, but the north and easterly parts are better. It is suitable for pasture, and in places for general farming. The surface is generally rolling, with some large flats and sloughs. It is about one-third, or a little more, covered with bluffs of small poplar and willows scattered throughout, and the balance is prairie and little ponds and sloughs. The timber is small poplar, seldom exceeding 6 or 7 inches in diameter, and is scrubby. It is scattered about through the township, the greater part of it being in sections 15, 16, 17, 18, 19, 20, 29 and 30. There is plenty of good hay to be obtained nearly all over the township, particularly on section 24. Water is fresh, very little alkali. Turtle river winds through the township from the northwest corner to the southeast. It is about a chain wide, and from 3 to 6 feet deep and runs about 2½ miles per hour. I see no danger of flooding from it. There are no water-powers. Climate is good; I have seen no indication of summer frosts. The only fuel is poplar, obtained from bluffs scattered throughout the township. There are no stone quarries and no minerals. There is one rancher located in the township on section 32, who has been there about eight years. He bought out a former occupant. He raises quite a number of horses and cattle and says he has some 40 acres under cultivation.—*T. S. Gore, D.L.S., 1903.*

Township 50.—This township lies about 4 miles north of the Battleford and Onion lake trail, and is easily approached from it. The trail is in fair condition. The soil is generally a clay loam, though sandy in some places near Turtle river. It is suitable for general farming. The surface is rolling and about one-fourth covered with scrub

and small poplar, most of the scrub being on the north and east parts of the township. The only timber is poplar up to 6 inches in diameter, scattered about principally near the northeast part of the township. There is very little hay; a small quantity could be obtained around sloughs throughout the township. The water in ponds is fresh. Turtle river flows down the west side of the township, and this year is about 1 chain wide and 4 feet deep. The water is good. It flows about 2½ miles per hour. The land is not liable to be flooded. There are no water-powers. The climate this summer has been very cool and wet. There are no indications of summer frosts. Small poplar is the only fuel. It is scattered about the township, but is more plentiful in the northeast part. There are no stone quarries and no minerals. Ducks and prairie chickens were the only game seen.—*T. S. Gore, D.L.S., 1903.*

Township 51.—(East and west outlines.)—This township is much better than the one to the north. Along the eastern boundary it is scrubby, with a good deal of poplar scattered on both sides of the east boundary. To the east the country appears more open, with better prospects for agriculture. This township appears to be generally hilly, with many sloughs. There is no hay. Turtle lake river crosses the northeast corner of this township; it is rapid and not fordable for horses.—*J. J. Dalton, D.T.S., 1903.*

(Subdivision.)—The trail to Emmaville post office passes through the southwest corner of this township, and is a fairly good road. The soil is a rich black loam, and is suitable for general farming. The surface is rolling, and a great deal of it covered with poplar and willow scrub and small poplar timber scattered throughout, but thicker on the eastern half of the township. The timber is scrubby poplar up to 10 inches in diameter, scattered all over the township, but thicker on the east half. There is not very much hay, but what there is is good, and is scattered about mostly in the southern part. The grazing is very good. The water in sloughs and ponds is fresh and good, and there is plenty of it. Turtle river flows through the northern part of the township. It is about a chain wide, and from 3 to 5 feet deep, running about 3½ miles per hour; water good, but hard. It is not liable to cause floods on the adjacent land. There are no water-powers. The climate is variable; there are no indications of summer frosts. The only fuel is small poplar scattered about the township. There are no stone quarries and no minerals. Prairie chickens and ducks were the only game seen. There is a good growth of upland grass and vetches throughout this township, and being so well sheltered with thick brush and small timber, it would afford splendid winter pasture for horses.—*T. S. Gore, D.L.S., 1903.*

Township 52.—(East and west outlines.)—This township is rolling, scrubby and hilly, with clumps of small poplar, poplar thickets, numerous deep ponds and sloughs. The soil is very shallow everywhere along its eastern boundary, and is not well adapted for either farming or grazing. Fuel is plentiful, and building timber can be found in small quantities only. Hay is scarce.—*J. J. Dalton, D.T.S., 1903.*

(North outline.)—Through part of this range the country continues rolling. It becomes quite hilly in the eastern half, and is generally covered with patches of young poplar and willow scrub, among which there are many small prairie openings. Half a mile to the north of the line lies Round Sandy lake, reported to be 4 miles in diameter. Near its southern extremity, in section 3, township 53, are a few shacks inhabited during certain seasons of the year by Indians in quest of fish, with which this lake, like so many others in this district, abounds. Three roads coming from the south intersect the north boundary of this township. The central one intersects the line near the middle of section 34, and leads through open country to those shanties. The eastern wagon road winds amongst the hills near the northeast corner of the township, whilst the third one is a new trail crossing the line close to the northeast corner of township 52, range 21. No streams of any account were intersected by this line. The soil in sections 31 and 32 is a sandy loam, eleven inches deep, overlying a subsoil of clay.—*A. Saint-Cyr, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN.

Range 21.

Township 5.—The township is high, dry, rolling, bare prairie land. A few small sloughs are found.—*G. J. Lonergan, D.L.S., 1902.*

Township 6.—The township is traversed by Frenchman river. On the bank of the river in the northwest part of the township is situated the East End post office. Ranchers have availed themselves of the best locations along the bank of the river. No timber is to be found in any part of the township.—*G. J. Lonergan, D.L.S., 1902.*

Township 7.—The township is high rolling prairie. It is well watered by Swift-current river, which flows through the northeastern part, and by numerous springs and creeks that are found in the western half of the township. Good timber for building purposes is available in the deep ravines of the northern part of the township. Three settlers were found and appeared to be in a prosperous condition.—*G. J. Lonergan, D.L.S., 1902.*

Township 8.—This township is bare, high, rolling prairie. Swiftcurrent river has its source in section 10 and then flows south, thus leaving very few places available for ranching. The balance of the township could not be recommended for ranching, as there is no water.—*G. J. Lonergan, D.L.S., 1902.*

Township 35.—A trail from Battleford passes to a junction with the Saskatoon trail, which passes through the township. The two trails join to the northwest of this township. The trail to Saskatoon was used by other contractors. The trail to Battle-ford is unimproved, but well located and mostly passable. The soil is suitable for farming. The township is all open prairie, but cut up badly, as the topography shows, by a series of ravines or coulees. Shrub growth barely sufficient for a supply of pickets of poor quality, and no timber. Any hay of value would be on section 9 on an area of probably twenty to forty acres. The sloughs are pretty nearly all dried up, however, there are two good lakes to afford permanent water, also a slough on section 22 and on section 11. The water may not be permanent in dry seasons. No areas liable to flood. No water-power. There was a heavy snowfall at end of May, but probably not usual. First frost was about September 2, but no serious snowfalls during the open autumn. A wet drizzly season was passed. Fuel was obtained on the nearest shores of Tramping lake, but it was not very good. No stone quarries. Sodium sulphate (or salt cake) was found crystallized out on the stones of shore of Sodium Sulphate lake. No game was seen.—*S. James, D.L.S., 1903.*

Township 36.—A trail from Battleford passes through the township. It is an unimproved trail, but beyond being wet and difficult at times its position could not well be improved. It passes farther south to a junction with a trail leading to Saskatoon. The soil of this township is suitable for farming. It is all open prairie (except the two Ear hills) with not enough shrub growth to make survey sights. No timber. No hay in quantity. Sloughs are now pretty dry, but there is good water in slough on section 17, where the party camped, also on section 31. This water, though, may not be permanent in drier seasons. No likely flood areas and no water-power. There was a heavy snowfall at end of May, but it was probably not usual. First frost about September 2, but no serious snowfalls during an open autumn. A wet drizzling season was passed. Fuel was obtained of excellent quality on the east side of Tramping lake. No stone quarries. No minerals. Game not seen.—*S. James, D.L.S., 1903.*

Township 37.—From Battleford, a trail passes through the township. It is an unimproved trail, but beyond being wet and difficult at times, it cannot be much improved or shortened. It passes on to a junction with a trail to Saskatoon, which trail was used by other contractors, but not by our party. Soil is suitable for farming, but there are some stones in places. It is all prairie, with not enough shrub growth to make pickets for survey purposes and no timber. There is a hay marsh or slough on sections 10 and 15, and also on sections 22 and 23. The former about 100 acres, the

latter perhaps 50. There is good water in both these sloughs, also in sloughs on north boundary of section 8 and on sections 9 and 15. Otherwise water was hard to find. On section 15 the greater part of the south half of the section is liable to flood. No water-power. The heavy snowfall at the end of May was probably not usual. First frost was about September 2, and it was heavy. We had a wet drizzling season and windy. Fall extended to pretty late and was not too severe. Fuel was obtained from across Tramping lake, and was fine, dry poplar of 5 to 7 inches in diameter. No stone quarries and no minerals. Game was not seen.—*S. James, D.L.S., 1903.*

Township 38.—From Battleford a trail passes through the township. It is an unimproved one, but beyond being wet and heavy at times, it cannot be much improved upon or changed. It passes to a junction with a trail to Saskatoon, which trail was used by other contractors, but not by the writer. The soil is suitable for farming, but is somewhat stony in places. It is all prairie, with not enough growth to make pickets for survey use, and there is no timber. There is a hay marsh or slough of about 20 acres on section 1, but not of an encouraging character. Water, where at all obtainable, was fresh, but it had to be carried in cans for tea for lunch. On sections 1 and 22 (latter being camping place), fresh water could be obtained. No land liable to flood and no water-power. Heavy snow fell at end of May, but this is not a usual thing. First frost came about September 2, and was heavy. It was a wet, drizzling season and windy. Fall was not severely cold and extended quite late. Fuel was obtained from the easterly side of Tramping lake and floated across by means of a boat lent by Mr. Proudfoot. It was very fine burning wood. No stone quarries. No minerals. Prairie chicken, partridge, duck and wild turkey were not so much seen as usual.—*S. James, D.L.S., 1903.*

Township 39.—To reach this township most readily one should go out southwesterly from Battleford by the Cypress or Red Deer Forks trail, following this trail for about 30 miles, then strike off due west over the prairie a distance of about 7 miles, when the northeast corner of the township will be reached. The soil is practically all a strong clay loam of splendid quality in every way suited for agricultural purposes, and the growth of all ordinary farm crops, produced in Canada. The surface is open prairie over the entire township, there being no wooded growth of any kind. There are no extensive hay meadows, but quite a lot of hay may be had around some of the small marshes in the interior of the township, notably at the meeting of sections 23, 24, 25 and 26. There was a very good supply of water everywhere in the township at the time I was there, and I fancy, that the marshes, &c., in which it is found do not all dry completely up. The stream (Eagle creek) which is found in Crooked valley is saline, as well as the lakes and marshes therein, but the water would not be unwholesome for stock. This valley or ravine runs right across the township from east to west or rather to the northwest from the next township to the east, and has a depth below prairie level of from 15 to 20 feet at the west to about 65 feet in the east, the sides of which are steep and covered with stones all the way along. The stream (Eagle creek) spoken of in it has little or no current, and I fancy, does not really run except for a short time when the snow is going in the spring. There are no natural water-powers in the township, but possibly one might be created by damming Crooked valley and thus a pond or lake be formed of considerable size, which might be used for producing power. This would be an expensive work, and of its real value as a power little or no idea could be formed without knowing about the rainfall of this district, which would appear to be very light. Appearances would seem to indicate that great dryness of climate is the rule, with also a great liability to summer frosts. No fuel of any kind is found in the township, and no veins or beds of coal or lignite were noticed. No fixed rock was seen and thus no places for quarries could be indicated. No useful minerals were found. Antelope are fairly numerous and at all

lakes and marshes great numbers of ducks were seen.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 40.—There are two ways by which this township may be quite readily reached. First, by the Sounding lake trail for about 27 miles out from Battleford, thence due south about six miles. The other way by the Cypress trail or trail to Red Deer forks the same distance out from Battleford as the other, then due west seven or eight miles. Both of the trails mentioned are good, but after leaving the trails the prairie is rough and the travel hard. The soil over the greater part of the township is a good clay loam, suitable for the raising of any ordinary farm crop. In the south-western part, however, there exists quite a tract of very bad land, saline and boggy. Sections 5, 7, 8, 17 and 18 are almost wholly of this nature, and parts of 4, 6, 9 and 19 are also included in it. The surface of this township is entirely open prairie, without any wooded growth whatever. There are no large hay meadows, and no great amount of hay could be got in this locality. There was an abundance of water at the time of survey (June), but I fancy it would get pretty scarce towards the end of the summer. Where found in the better part of the township, the water is good in quality, but in the saline portion mentioned it is bad. There are no streams and no water-power in the township. Apparently this is a dry section of country, and in my opinion it is subject to summer frosts also. No fuel of any kind is readily available that I know of. No seams of coal or lignite were seen. No rock exposures were observed, nor any places where quarries of stone could be opened up. Minerals—none. A few antelope were seen, but other game was not much in evidence. Good bricks could be made of the clay soil, which is all but universal. In the saline area spoken of are large areas underlaid with a very plastic clay of a yellow colour, which may prove of some value for pottery or cement making.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 41.—This township is entirely an open prairie, with in general a gently undulating surface. Two low gravelly ridges are found in the township, one in the northeast and the other in the southwesterly part of the same. In a good many places stones are quite plentiful, and more or less of them are seen everywhere in the township. Water is not plentiful, though what there is of it is good in quality. There are no hay meadows in the township. The soil, a good clay loam in general, is excellent in character, and if climatic conditions are favourable, could not be excelled for all ordinary farm crops. I am inclined to think that frosts occur too often for successful grain growing. No water-powers exist in the township nor fuel of any kind. No useful minerals were seen, nor any stone quarries or beds of rock of any kind. There is no wooded growth of any kind in the township, and no kind of fuel is readily available anywhere that I learned of. A few antelope were seen near the south side of the township. Mosquitoes are found in good supply and most interesting in their attentions. Sounding lake trail, passing through the northerly part, is a very good trail, and the distance from Battleford is about 30 miles.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 42.—The Sounding lake trail passes across the southeast part of this township. This trail is a very good one, and the distance by it to Battleford is about 28 miles. The soil is in general an excellent clay loam, though in the northern part some patches of saline land are met with. If climate is suitable the land in this township can scarcely be surpassed for any ordinary farm crop. The surface of the township is entirely open prairie with no wooded growth of any kind. There are no hay meadows. Water is not plentiful, but with the exception of that found in the saline land spoken of is very good in quality, and is fairly well distributed. There are no permanent streams and no water-powers in the township. I would judge the climate to be frosty in summer, as the elevation (third prairie steppe) is considerable. No fuel of any kind was seen in the township nor any coal seams observed. Fuel is not readily available, that I learned of, anywhere near-by. No stone quarries or beds of stone or rock exist in the township, though scattered about generally surface stones

are found that could be split and used to build walls with. These stones are mostly composed of granitic or gneissoid rock, a very few among them being of limestone of a saccharoidal variety. No minerals of a useful kind were seen. Little or no game was met with. As a general thing, high land hay can be had in limited quantity all over the township.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 43.—This township is not on any direct line of travel, no regular trail passing through it, but it may be reached by the Sounding lake trail from Battleford. Perhaps the most convenient way to adopt would be to go out from Battleford by the trail mentioned for about 14 or 15 miles, then turning off the trail, travel due west, where very shortly the Sliding hills will come into view in township 43, range 20, passing these on the south, a couple of miles beyond the township is entered in its southerly part. The total distance from Battleford being about 27 miles, the trail portion is good and the other not very bad. The soil in this township is generally exceptionally good, being for the most part clay and sand loam of great depth; some saline ground, poor and stony is found along the southern boundary in sections 3, 4 and 5 principally. As a rule the soil is all one could desire as land for agricultural purposes, suitable for any ordinary farm crop grown in Canada. The township is entirely in prairie country, with the exception of a few small willow bushes on the southern part, no wooded growth exists within its borders. On sections 23 and 26 there is one very good hay marsh which would furnish perhaps 25 acres of ground to cut over. There are, however, no extensive meadows in the township, but a number of marshy spots, more especially in the southern part, would furnish a considerable quantity of hay to intending settlers. There is considerable permanent water in the township. Cutknife creek crosses from west to east and although not running at the time of survey, it contains a large supply of water in pools, which being only a little brackish in flavour is quite good enough in every respect for all kinds of stock. Indeed in many of the large pools the water is quite good enough for household use. Elsewhere the water in marshes and sloughs is fresh and good and the supply is fair throughout the township. As there are no permanent streams in the township no water-powers could be developed, and there are no rapids or falls on the only stream, Cutknife creek, in this locality. Fuel is not readily obtainable in the township, and there are no beds or seams of coal or lignite so far known in it. Probably two or three townships farther north there may be some wood to be had along Battle river, but that would be a long way to go for it. On the east and north of Cutknife creek in township 44, range 20, there is a little wood mostly dead and dry, but I do not think this of any use to this township as the valley of Cutknife creek is so very difficult to cross, and then the very great probability that prairie fires will have swept this wood away in any case before settlement will require to look for it. No rock exposures were seen in this township. No useful minerals of any kind were seen. No large game was noticed, but ducks and small wading fowls and snipe were, in many places, plentiful. This township would make a good summer range for stock.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 44.—This township lies to the west and a little north of Battleford, the central point for this district, and perhaps the best way to reach it would be to start from that town by the trail to Poundmaker's reserve, following this trail for about 30 miles, which would take one well into the reserve. One south from this brings one to the south boundary of the reserve in about 4 miles, and as this township lies immediately to the south of the reserve here, from this as a starting point any point in the northeasterly part of it may be reached. To reach the northwesterly part, the trail spoken of should be followed a few miles farther on across Cutknife creek until the plateau on the west of Cutknife hill is reached, and then turning southerly a couple of miles the township is again reached. To reach the southerly and westerly parts of the township after leaving the trail at the first place mentioned a southwest course should be taken, and as the Eagle hill (3rd prairie steppe) is approached keep to the

west parallel to it at about one-half mile distant, and look for the crossing of Cutknife creek by an old and very faint trail, which seemingly leads almost due south directly up the valley of the creek. An ascent out of the creek valley (150 feet or so) can be comparatively easily made here to the level of the parts of the township desired. The Eagle hill mentioned runs across almost due east and west for many miles, and rises from 150 to 200 feet, and is a serious obstacle to surmount. On account of this hill and the deep valley of Cutknife creek, with dozens of almost impassable ravines which enter into it, this township is a very hard one to get about in. The trail above mentioned (from Battleford) is a good one, and the travel is also very good after leaving the trail, except for the tremendous hills to be surmounted to get into the township. All kinds of soil are found in the township, some valueless, and a good deal first class and capable of producing good crops under favourable climatic conditions. The township is practically a prairie township, but it is dreadfully cut up by extremely deep ravines that are most difficult to pass. In these ravines, but never visible until you stand right on the edge, are small groves of poplar, balm of Gilead and a few white birch trees, the largest attaining to about 10 inches in diameter, but often of good length. These ravines in places are filled full of the very worst species of tangled willows and other brush. The wood just spoken of is practically of little value, as it is the next thing to an impossibility to get it out of the awful places in which it grows. There is no danger that prairie fires will ever touch or damage to any extent these groves, as there is so little to lead the fire down the broken clay sides of these gorges. There is no hay land in the township. Water is plentiful, quite a number of ponds and marshes being found, and then most of the ravines have small runs of water in them, besides Cutknife creek, and a tributary from the west. That in the creeks and ravines might almost as well not be there so difficult is it to attain. All water is good and wholesome. There are no natural water-powers, but Cutknife creek could be dammed and a head of upwards of 100 feet obtained; this would, of course, be an expensive undertaking, but a great power could be developed in this way no doubt. The lowest stage of this stream is about 3 feet in width, 6 inches in depth, with a flow of one mile an hour; the average of the year is probably three times this amount. There is no land in the township liable to flooding. General indications are that the climate is dry and frosty. I do not believe that grain can be successfully raised in this locality. As to fuel, there is certainly quite a bit of it in the ravines mentioned, if it can be got out, but not readily available in the township, I can assure you; elsewhere I do not know where it can be readily obtained. No seams of coal or lignite were observed. No places where quarries might be opened up were noticed, nor rock exposures. There does not seem to be any rock in the bank or escarpment (3rd prairie steppe) of the Eagle hill. I carefully examined several tremendous hills that run back into it for this very purpose. No valuable minerals were discovered. Ducks and prairie fowls were fairly abundant.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 50.—The Onion lake trail from Battleford runs through the township from the southeast corner to the centre of the west boundary, and most of the way is a very good road. The soil is a rich clay and sandy loam with subsoil of clay, and in some places sand and gravel combined with clay, the high ground generally stony. Suitable for grazing and hay. The surface is slightly undulating and it is about two-thirds prairie and one-third willow and poplar scrub. There are numerous small ponds and marshes. The timber is small poplar, seldom exceeding 5 inches in diameter and willow brush, the latter very dense where it occurs. The timber is scattered in small clumps or bluffs. Plenty of hay can be obtained round most of the marshes throughout the township, but it is most plentiful in a valley, about 75 feet below the general surface, running through sections 7, 8, 9 and 13. There is plenty of fresh water in marshes. Turtle river, a rapid stream about 50 links wide and three feet deep, touches the northeast corner of the township; its water is good and fresh. Englishman river

runs through the west sides of sections 7 and 6 into the Saskatchewan and contains good water. It is a rapid stream about 25 links wide and two feet deep. The land is not liable to be flooded by either of these streams. This year there have been strong northerly gales with snow and rain up to May 25. I am unable to state whether there are summer frosts or not. No water-powers exist in the township. The fuel is small poplar, obtained from the clumps scattered about. No stone quarries or minerals were observed. There are numerous ducks and prairie chicken, and deer are said to be plentiful. The valley of Englishman river is broken by land slides which appear to be of quite frequent occurrence. This township is generally better adapted for stock raising than for agriculture, though some parts of it are suitable for the latter.—*T. S. Gore, D.L.S., 1903.*

Township 51—(East outline.)—The township is generally hilly on the east boundary. This boundary crosses Turtle lake river at the north boundary of sections 19 and 24. The stream is too rapid to be fordable for men at this point, and owing to its soft banks it is not fordable for horses for miles above or below this boundary line. The country from this point south is generally hilly open prairie with scrub in the ravines and numerous bluffs of small poplar to the east. As one approaches the south side of the township the land is rolling and less hilly. The soil is generally deep black loam with variable light subsoil. Firewood is not very abundant and I do not know of any building timber.—*J. J. Dalton, D.T.S., 1903.*

(Subdivision.)—The branch of the Onion lake trail to Emmaville post office passes through the southwest corner of this township. It is rather a poor road. The soil is black loam and sandy loam, and is suitable for general mixed farming. There is considerable open prairie through the middle of the township, but the eastern and western parts are nearly all covered with brush and poplar scrub, and through the northern and western tiers of sections there is sufficient poplar suitable for building for local use. There is good hay along the small creek running into Turtle river and adjoining small sloughs scattered throughout the township. The water is fresh and good generally. A small creek, apparently permanent, and about 10 feet wide and 3 feet deep, flows in from the north in section 33 and through the middle of the township into Turtle river in section 12. Turtle river, about 1 chain wide and 4 feet deep, flows in and out along the east boundary of the township. Climate was wet and cold this summer, but no indications of summer frost were seen. The only fuel is poplar which can be obtained in all parts of the township. There are no stone quarries and no minerals. There are no water-powers in the township. Prairie chickens and ducks were the only game seen.—*T. S. Gore, D.L.S., 1903.*

Township 52—(East outline.)—This township is very hilly, with much scrub along the northern boundary, but along its eastern boundary the land is open rolling prairie, with light scrub and a few scattered sloughs for 2½ miles, where the land becomes low, with lakes on both sides of the line. On sections 13 and 18 there is a large lake 36 chains across and about a mile and a half long. South of this the land is low and wet for a mile, then it becomes a succession of knolls and ridges to the southeast corner of the township and extending far on each side of the eastern boundary. There are several bluffs of good spruce and poplar timber suitable for building. Wood for fuel is not very abundant here, but may be found to the northeast within a few miles. Soil generally is black loam 8 to 10 inches deep, with a variable but light subsoil.—*J. J. Dalton, D.T.S., 1903.*

(North outline.)—Excepting section 36, which is level prairie, the north boundary of this township runs through a rolling country covered with bluffs of poplar 6 inches in diameter, interspersed with small prairie patches, and thick willows around the marshes and lakes. In sections 31, 32, 33 and 34, the soil is a black or sandy loam 6 to 18 inches deep, with a subsoil of clay and gravel. In sections 35 and 36, the soil though lighter is still of good quality. Large boulders of grey granite appear fre-

quently on the surface. A creek enters this township in section 32 and flowing southerly through a narrow valley it connects lakes on the north and south side of the base line. Another and more important stream, the outlet of Round Sandy lake, in township 53, range 20, crosses the north boundary of section 35. It empties into another large lake about 3 miles south of the line. These streams and lake give a good supply of fresh water in these townships, where good hay is also found. It is a good country for stock raising, as is also the valley of the Englishman river in range 22, and in which Emmaville is situated. West of the outlet of Round Sandy lake the hills rise to a height of 135 feet and are thickly timbered with poplar. A new wagon road from Emmaville crosses this township from west to east at an average distance of 2 miles from the north boundary of the township.—*A. Saint Cyr, D.L.S., 1903.*

Range 22.

Township 5.—The township is high rolling bare prairie, with many large sloughs. Ranchers who live in the township cut their supply of hay from township 5, range 21. —*G. J. Lonergan, D.L.S., 1902.*

Township 6.—The township is traversed by a large ravine in the bottom of which flows Frenchman river. A few settlers are located along the river and ranching is their only occupation. Small bluffs of timber are found in the valley.—*G. J. Lonergan, D.L.S., 1902.*

Township 7.—The township is high, rolling and bare prairie. One large creek flows through the centre of it in a southerly direction, discharging its waters into Frenchman river. Large flats in the valley can be easily irrigated from the above mentioned creek. Some small bluffs of timber are found on the hill sides. East End post office is situated on section 32.—*G. J. Lonergan, D.L.S., 1902.*

Township 35.—This township is situated about 110 miles west of Saskatoon, the nearest railway town, and 60 miles southwest of Battleford, the nearest post office and supply station, and is accessible from both places by a good wagon trail—that from Battleford passing through the township from northeast to southwest. In the northerly and easterly parts of the township the soil is a heavy clay with clay subsoil, but in the more southerly and the western parts the soil is quite sandy with clay or in some places gravel subsoil. The northern portion is high and rolling to hilly, but about two miles from the north boundary the land becomes more level and considerably lower. Towards the south boundary the surface is in places slightly broken by sandy knolls and ridges. No timber or scrub of any description was found. Numerous hay marshes were found in all parts of this township and some of them are of very considerable extent, covering from 50 to 100 acres. One of the largest occurs on sections 22 and 27 adjoining the Battleford and Fort Walsh trail. This hay marsh or meadow like most of those in the district is composed of the very common coarse marsh hay of the prairies, but upon sections 11, 14 and 15 there is an extensive meadow of blue-joint grass of very fine quality and heavy growth. The largest body of water is an alkaline lake covering part of sections 9 and 10. Several other small alkaline sloughs occur on sections 16, 8, 17, 18, 20, 29 and 30, and on section 16 close to the trail, a small fresh water slough was found within 100 feet of another very saline pond. This was at the end of September, the driest part of the season. There is no doubt that during the spring and early part of the summer fresh water would be plentiful enough in the sloughs and marshes. From what has already been said it may well be inferred that no water-power exists upon the township. At the time that this township was subdivided the weather was pleasantly warm during the days and cool at nights. From the luxuriant growth of hay in the meadows and wild flowers upon the prairie, I judge that the climate is not unsuited for the production of wheat, oats and most other cereals and root crops commonly grown in the Northwest Territories. No fuel of any

description is found and the nearest local supply exists along the southwestern shore of Tramping lake, where a very limited quantity of poplar and dogwood was found. A somewhat more abundant fuel supply is found in what is known as 'the 60-mile bush,' situated in township 35, ranges 15 and 16, but even this is not at all sufficient for the future requirements of the country for more than a very short time. Coal appears to be the only future fuel supply of this locality and so far as now known the Saskatchewan river is the nearest locality from which it can be obtained. No stone quarries and minerals of any description were found. Feathered game was observed to be very plentiful and more especially brant geese with wavies and numerous kinds of duck—notably mallards. Sand-hill cranes were seen occasionally but no prairie chickens were observed. A few antelopes are found in the locality, though none were observed in this township. The same note would also apply to badgers, foxes and prairie wolves—the burrows of which are everywhere to be seen in the lighter descriptions of soil.—*J. W. Tyrrell, D.L.S., 1903.*

Township 36.—This township is situated about 110 miles west of Saskatoon, the nearest railway town, and 60 miles southwest of Battleford, the nearest post office and supply station, and is accessible from both of these places by good wagon trails, both passing directly through the township, that from Saskatoon in an easterly and westerly direction and that from Battleford cutting across the southeast corner of the township. The soil of the township for the most part is composed of heavy clay with clay subsoil and is, I judge, suitable for the growing of wheat or general farming purposes. Numerous hay marshes exist, in which a very rank growth of hay was found, consequently it would be also well suited for grazing land. The surface is open rolling prairie with occasional elevations of from 50 to 75 feet above the surrounding country, with numerous hay marshes in the lower bottom lands. No timber of any description is found upon the township, the nearest timber being in the valley of Tramping lake, 12 or 14 miles to the southwestward, where a limited quantity of poplar and dogwood was found growing, and from which we obtained our fuel supply. The numerous small hay marshes are scattered pretty generally over the entire township, quite a number being located on the more easterly sections and a large marsh being located on sections 28, 29 and 32. The hay is the ordinary marsh hay of the prairie. During the dry season of the year water is a scarce commodity, but in the spring and early part of the summer abundance of fresh water may be found in any of the hay marshes and throughout the season of 1903 a few grassy fresh water sloughs were found on sections 4, 5, 8, 23, 26 and elsewhere. No alkali waters were met with upon this township and though during the later part of the summer water of any description was scarce, it is very probable that during a wet spring season very considerable areas might be flooded, particularly those parts already described as hay marshes, as the heavy clay must have a tendency to hold surface water for a considerable length of time. As may be inferred from the description already given, of this township, no water-power exists upon it. Judging from the general appearance of the township and heavy growth of hay and other forms of vegetation, such as numerous wild flowers, &c., I am of the opinion that the climate in this locality is not too severe to admit of the raising of wheat, oats and many other farm products. As this township was surveyed by me during the latter part of September I am not in a position to report from personal knowledge in regard to the occurrence or otherwise of summer frosts. At the present time the most readily available fuel in this locality is, as already mentioned, in the valley of Tramping lake which extends through townships 35, 36, 37 and 38, range 20, and is therefore but a few miles to the eastward. The quantity of timber in this valley is, however, very limited and not at all sufficient for the future needs of the country. A more extensive area of timber known as 'the 60-mile bush' exists on townships 35, ranges 15 and 16, west of the third meridian, and it is from this locality chiefly that fuel is now obtained for the country immediately surrounding it within a radius of 30 or 40

miles. So far as is at present known no coal or lignite veins occur in the township, but with improved transportation facilities fuel of this description may be obtained from the Saskatchewan river valley. No stone quarries or minerals were found. The only description of large game now found in this township is the antelope, a few of which are scattered over the prairie. Judging from the numerous and deep trails, everywhere met with on the prairie, this locality was evidently inhabited by countless numbers of buffalo, but these have of course now passed into history. Of feathered game there is quite a variety, chiefly wild ducks which are found in great numbers upon almost every slough, and at certain seasons of the year geese are also very numerous. Prairie chickens are occasionally met with, though less numerous on this township than in other localities where a certain amount of timber or scrub is found. —*J. W. Tyrrell, D.L.S., 1903.*

Township 37.—This township is situated about 110 miles west of Saskatoon, the nearest railway town, and 55 miles southwest of Battleford, the nearest post office and supply station, and is accessible from both these places by fairly good wagon trails, that from Battleford passing through the southwestern part of township 38, range 21, and that from Saskatoon passing through township 36, range 22. The trail leading from Battleford to this township is rather the better one of the two, and the distance being much shorter, it is the more advantageous route. The soil is composed chiefly of heavy clay with clay subsoil, and in some of the higher localities contains many boulders. Like township 38, this one is also well suited for grazing purposes, but I judge that it is also suited for general farming, more especially the growing of hay, wheat, oats and other cereals. The very heavy character of the soil would rather unfit it for the growing of root crops. The surface is open prairie, no timber or scrub of any description grows upon it. The eastern and southern parts of the township are quite level, but the central and northwestern parts are very much broken and hilly, and a large grassy lake of slightly alkaline water lies on sections 19, 20, 29, 30, 31 and 32. About the shores of this lake there is a considerable area of low flat land which appears to be flooded during seasons of high water. These low flats consist of soft muddy clay, so soft that in most places it is impossible to reach the water of the lake. One of my horses in attempting to reach the lake became so deeply mired that it was with the greatest difficulty, after many hours of hard labour that we were enabled to extricate him. The township is particularly well supplied with marshes of natural hay, the chief ones being located upon sections 3, 4, 10, 14, 15, 22, 23 and 33. The hay in these marshes is coarse and rank, but is such as is commonly used in the North-west Territories for the wintering of live stock, and appears to form an excellent fodder. In all, I should judge there are about two square miles of natural hay meadows in different parts of the township, and the hill surface supports a good growth of prairie grass well suited for grazing purposes. The township is fairly well supplied with fresh water which may be found in all, or nearly all, of the hay marshes. The water of the large lake above referred to is not sufficiently fresh for drinking purposes, although it is only slightly alkaline. There are two small brooks, but during the month of October, when visited by us, they were dry or nearly so, water being found only here and there in pools in the stream bottom. One of these brooks runs through sections 9 and 16, discharging into the large lake. The other passes through sections 23, 26, 27 and 35, and flows into Muddy lake in the next township. During the spring and early part of the summer the township would be abundantly supplied with fresh water, and in places may be flooded over considerable areas. No water-power was found in the township. As the subdivision was done during the month of October, I am not in a position to report much in regard to climate, but believe that such is not too severe to admit of the production of all farm crops commonly grown in the districts of the North-west. Frosts were of course experienced at the time my survey was made, but I am unable to say whether there were summer frosts or not. There is no fuel in the

township, the nearest available supply being in the valley of Tramping lake. This, however, is extremely limited, and for a more abundant supply the Red Pheasant Indian reserve is the next most convenient source. Here large sized spruce, poplar and birch may be obtained, as well as in the other parts of the valley of the Saskatchewan river. Coal is not known to exist in this locality. No stone quarries were found nor minerals of economic value. The only large game in this township is the antelope, which is occasionally met with, but badgers, prairie wolves and foxes are quite numerous. Water fowl were very numerous upon the lake and marshes; great numbers of ducks and geese of many varieties being observed. No prairie chicken were met with. —*J. W. Tyrrell, D.L.S., 1908.*

Township 38.—This township is situated about 110 miles west of Saskatoon, the nearest railway town, and 50 miles southwest of Battleford, the nearest post office and supply station, and is accessible from both of these places by good wagon trails; the one from Battleford passing through the southwesterly part of township 38, range 21, and that from Saskatoon passing through township 36, range 22. The trail leading from Battleford to this township is rather the better one of the two, and the distance being very much shorter, it is for the most purposes the more advantageous route of approach. The soil is chiefly a heavy clay containing boulders in some localities. In its present condition it is well suited for grazing lands, as the most part supports a strong growth of grass. It is, however, suitable for the raising of wheat, oats and other cereals commonly grown in the Saskatchewan district, though not very suitable for the raising of root crops. Being well supplied with fresh water, I consider this township particularly well adapted for grazing purposes. The surface is very much broken by numerous high ridges and deep ravines, most of which run in a northwesterly direction towards a large body of water known as 'Muddy lake,' occupying the northwestern part of the township. Many of the hills rise to elevations of from 75 to 100 feet above the bottom lands and the ravines are also deep, and in places quite precipitous. In some of these ravines a very limited quantity of scrub and small poplar and willows was found, sufficient for supplying our camp with fuel, but nothing of importance as furnishing anything in the way of fuel supply for the future. Hay marshes are not so numerous as in many other townships, but the general growth of the prairie grass was exceptionally strong and heavy in most of the valleys, as well indeed as on many of the uplands. While, therefore, the township produces abundance of grass for stock raising purposes, it contains comparatively little marsh hay. The township is exceptionally well supplied with water, the northwestern part of the township being occupied by what is known as 'Muddy lake,' which is so nearly fresh as to be quite well suited for domestic purposes. Besides this lake there are several small fresh water ponds scattered throughout the township, as well as three or four small fresh water brooks, all of which flow into 'Muddy lake.' The water of these brooks is exceptionally good for drinking purposes, containing, if any, only slight traces of alkali. The volume of these streams is very small, but the flow appears to be constant. Although some of these streams have very considerable falls, they are all of such diminutive size that they do not amount to anything as water-powers. As this township was subdivided during the fore part of October, I am not in a position to report very much in regard to climate, but believe that such is not unsuited to the production of all farm crops commonly raised in the district. Frosts were, of course, experienced at the time that my survey was made, but I am unable to say whether there were summer frosts or not. Of fuel, as already intimated, a very limited amount was found in several of the ravines, but for any more considerable supply, the nearest available is in the valley of Tramping lake, or that being exhausted, upon the Red Pheasant Indian reserve, where good sized spruce, poplar and birch may be obtained. Coal is not known to exist in the locality. No stone quarries were found nor any minerals of economic value. The only large game likely to be found on this or adjoining townships

is the antelope, which is occasionally met with, but the badgers, prairie wolves and foxes are quite numerous. Water fowl were very numerous on Muddy lake and the other smaller bodies of water. Great numbers of ducks of many varieties were seen as well as numerous brant geese and white wavies. A few prairie chicken were found about the willows and scrubs in some of the ravines.—*J. W. Tyrrell, D.L.S., 1903.*

Township 39.—This township may be most readily reached from Battleford, going out from that place southwesterly by the Sounding lake trail for about 20 miles, to where a less pretentious trail forks off to the left in a more southerly direction. Following this trail, which, though at first pretty plain and easily followed, becomes after a time rather faint, for about 22 miles the locality known about here as the 'Willows,' near Killsquaw lake is reached near the northern boundary of this township. This trail as well as the Sounding lake trail, is a very good one, and fairly smooth, with plenty of good water and good pasturage all along. The soils found in this township comprise a range from the lightest sand to the very heaviest clay soil ever encountered by me, and so hard that it cannot be removed at all without the aid of a pick-axe. These heavy clay soils found in this part of the North-west Territories, I believe to be of the cretaceous age, and I have no doubt that beds of this same kind of clay exist that will prove valuable in the manufacture of bricks, tile and cement, and perhaps for coarse pottery as well. The hay bearing lands in this township are found in the south part near Muddy lake, and do not comprise any great area. The very light land (soil) above spoken of is comprised in a tract of about 3 miles in length by 2 in breadth and adjoins Killsquaw lake on the southeast. Sections 13, 14, 22, 23, 24, 26, 27, 28 and 35 are more or less taken up with it, and the extent of it is about 3,000 acres. This land is almost useless and in many places has been blown out into hollows by the wind and piled up in small knolls. Some pasture, however, is found here and there over it. A few small patches of willow and choke cherry scrub and a few saplings of poplar and balm of Gilead were seen in this sand tract, but so limited in quantity and of so small a size that they have no present value, and are only spoken of here to show that a wooded growth is evidently possible if prairie fires could be suppressed. East of Battleford I travelled this spring in coming to make the survey of this and other townships, over tracts of land, now prairie, which I had to travel around in 1879 by reason of the timbered growth thereon, and this destruction and repression of the growth of trees is constantly going on. In the rest of the township excepting a strip bordering Muddy lake, which is both stony and saline and often boggy, most excellent soils of clay loam and sand loam are found, and granting sufficient moisture and freedom from frosts in summer, capable of producing good crops of any of the ordinary kinds grown in Canada. The surface of the township is practically all prairie of a gently rolling or undulating character, with no wooded growth other than the little scrub just mentioned. Bordering Killsquaw lake on the south and east is a tract of low ground in which considerable hay land was observed, say from 100 to 200 acres, which would probably cut from 1 to 2 tons per acre. I do not know the name of this grass, nor can I speak as to its quality for hay, but believe it would make good hay, it being neither the ordinary marsh or slough hay nor upland hay. A very good hay marsh is also found on sections 16 and 17, which would cut perhaps 30 tons to 50 tons of hay of good quality; elsewhere in the township hay is not plentiful. Abundance of water is found in this township, there being a good many fresh water marshes as well as the two large lakes mentioned. The water in these lakes is brackish, but all water in the township is perfectly good for stock watering purposes. No permanent streams are found in the township and no falls or rapids or other ordinary ways of developing powers by water are to be found. My opinion, based on appearances, is that the climate here is dry and that frosts occur in the summer season. No fuel is found in the township, and I do not know where any quantity can be obtained near by. No beds or seams of coal or lignite were observed nor any indications of any such. No beds of rock or

any places at which quarries could be opened out were seen, but all along the escarpment (3rd prairie steppe) paralleling and distant about three-fourths of a mile from the north side of Muddy lake great quantities of large stones of granitic and crystalline rocks lie strewn about from which most excellent building stones can be made. The escarpment mentioned as lying along and north of Muddy lake, undoubtedly represents the descent from the 3rd to the 2nd prairie plateau. The drop in elevation here is from 150 to 200 feet and is steep, rough, broken by coulees and very stony all along this hill. No useful minerals were seen nor any places noticed at which they might be expected to exist. A few antelope were seen, and on the lakes were seen immense numbers of ducks and other water fowl.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 40.—As Battleford is the outfitting place for the district in which this township lies, the best way to get to it is by way of the Sounding lake trail which leads out of the southwest of this town. About 43 miles south from Battleford on the trail a point will be reached which lies about three miles north of the central point of its north boundary. From here, as it is all smooth prairie for a long way all round, it will be easy to get to any point of the township that may be desired. The trail above mentioned is a good one to travel over with all conveniences of water, feed, &c., except wood, which after a few miles from Battleford is absolutely wanting. With the exception of a tract of from 1,500 to 2,000 acres extent lying in the northeasterly part, mostly in sections 25, 26, 27 and 28, in which the soil is a hard clay, generally saline, the soils found in the township are good clay loam and sand loams, and well fitted for the cultivation of all kinds of Canadian farm crops, if climatic conditions are right. The entire surface of the township is open prairie of a rolling character in general, with no wooded growth other than two or three willow bushes to be found on it. Considerable hay ground was observed in sections 3, 4, 8, 9 and 10 bordering the shores of a good sized lake, named by me 'Killsquaw lake,' because of an Indian story that long ago in the buffalo days, sixteen Cree women were surprised, in the absence of the men on the hunt, by a number of Blackfeet, cruelly murdered and thrown into this lake, they having taken their outfit to camp beside it, while the men chased the buffalo. Probably from 500 to 1,000 tons of hay could be gotten here, of a grass, however, unknown to me, but which I feel sure will make good hay. Small marshes and ponds are well distributed throughout the township, the greater part of them being fresh and the water I believe permanent in the most of them. There is a large marshy tract found in the hard clay area mentioned above, the water in which is saline and nasty, and the creek, a very small stream, flowing south from this to Killsquaw lake is also of a saline character, and the water in it bad. Killsquaw lake itself is a little brackish and of a queer flavour, but I believe it to be wholesome. I am certain its water is fit for stock of all kinds. There are no places or chances by which power can be obtained from water in the township. So far as the rainfall is concerned, there can be no doubt that in general it is very light in this district, though there were sufficient showers for all purposes this summer; and that summer frosts are also to be feared is probable. No fuel is to be found in the township, neither wood, coal nor lignite that I learned of and I do not know where any can readily be gotten outside of it. No rock was seen and no places at which quarries might be opened out were observed. No minerals of any economic value were found. No large game was seen, but ducks and other water fowl were seen in vast numbers in the lakes and marshes. This township would make an excellent all year round range for stock by the erection of large stables for shelter in winter. The pasture in the summer cannot be surpassed and there is a large amount of hay to be had for winter use.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 41.—The best way to reach this township is by the Sounding lake trail which passes diagonally from northeast to southwest through it ; it is a good trail and well travelled. The soil is generally of a strong clay loam of the best quality and well suited to produce any ordinary farm crop, if climatic conditions are favourable. The

surface of this township is gently undulating and the whole of it is prairie. No wooded growth other than a few small willow bushes near the north boundary, is found in the township. There are no hay meadows but quite a bit of high land hay could be cut almost anywhere in the township. Water is not plentiful except in the northern part where there is a fair supply in ponds and the quality is good. There are no streams of permanent water and no water-powers. My opinion is that the summers will be found too frosty for successful grain growing. There is no readily available fuel that I have any knowledge of, nor any beds or seams of coal or lignite. There are no beds of stone or rock and therefore no quarries could be developd in the township. Quite a few surface stones were seen scattered about, which, so far as they would go would serve for the construction of walls for buildings. No economic minerals were seen or discovered. A few antelope were seen, and a few ducks also, other game being very scarce.—*Fred W. Wilkins, D.T.S., 1903.*

Township 42.—The only way this township can be at all easily reached is by way of the Sounding lake trail from Battleford. This trail which leads out southwest from Battleford should be followed for about 32 miles, then leaving it on the left hand, strike due west across the prairie about four miles when the township will be reached at or about its southeast angle. The travel on the trail is good and the four miles of prairie is high and dry, though a little rough. The soil throughout the township is good, being mostly a splendid clay loam of great fertility, capable of producing any ordinary farm crop grown in Canada, under favourable climatic conditions. This township is entirely prairie with no wooded growth of any kind, having an undulating or rolling surface in general. A couple of low gravelly ridges occur in the southern part but are no detriment to the sections in which they occur, and indeed may in future prove of great value for the construction of roads, concrete buildings, &c. There are no large meadows from which hay can be got in quantity, but a good deal of hay can be gotten here and there over the township, but the bottom is rough and would be very hard on a mowing machine; the soil being strong and heavy a very hard compact sod covering has resulted therefrom. Water is fairly well distributed and there is quite a quantity of it in the lakes and marshes and, so far as this season is concerned, is fairly permanent. Except that found in two small lakes in sections 19 and 30, the water in the township is good and wholesome. The lakes spoken of are saline and extremely vile smelling ones. There are no water-powers nor any chance of such a thing anywhere in the township. Indications point to a dry climate with a liability to summer frosts. Fuel is not readily obtainable as there is no wood in the township and none very near. No seams of coal or anything of that nature were discovered. No beds of rock were seen nor any place at which a quarry might be opened. No minerals of value were picked up, nor any places noticed at which there would seem to be any likelihood of encountering anything of that kind. A few antelope were seen and on the lakes found in the township were seen countless flocks of ducks and other smaller water fowl.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 43.—This township which lies nearly due west from the town of Battleford may be most easily reached from that place by taking the Sounding lake trail which leads out to the southwest. This trail is a good one to travel along, and by following it about 30 miles from Battleford and then turning off from it in a northwest course, a further journey of about eight miles over very fair prairie land brings one to the vicinity of its southeast corner, from which point any desired part of the township may be easily reached. The soil throughout is good, clay loam predominating, and under proper climatic conditions is capable of growing in abundance any crop commonly grown in Canada. The township is all prairie with no wooded growth whatever, having a gently rolling surface generally. In the northwest and southwest parts, a little hilly ground is found with a good many surface stones in

places. No large meadows are found in the township but quite a bit of hay for the first needs of settlers is scattered about in various places. All the water found in the township is good and wholesome and in general a fair number of permanent ponds and marshes are met with everywhere. The northeastern part of the township is, however, not so well provided for in this respect as the rest of the township. Nothing in the way of water-powers or possibilities of such exist in this township. From appearances the climate is dry and frosty. Fuel of any kind is not found in the township, neither were any indications of coal or lignite observed. Wood for any purpose is scarce in this locality and I do not know where any is to be readily gotten. I am told that there is wood along Battle river, two townships farther north. To the northeast also in township 44, range 21, in the valley of Cutknife creek there are some small groves of poplar of fair size, but to get at it is very difficult by reason of the depth and steepness of the ravines in which it grows. No exposures of rock were seen and no places at which quarries might be opened were observed. No useful minerals were found. No large game was seen but in the lakes in the southwest part great numbers of ducks of various kinds were seen, as well as other birds which frequent wet places. This township woud make a fine summer range for stock, as the pasture is splendid and water fairly plentiful.—*Fred. W. Wilkins, D.T.S., 1903.*

Township 44.—This township may be conveniently reached from Battleford by the trail which leads through Poundmaker's Indian reserve. This trail which is an excellent one to travel over passes westerly along and a little to the north of this township. The distance from Battleford is about 36 miles to the nearest point of the township. All kinds of soil are found in the township except the very light and the very heavy, so that as an average the soil is very good indeed. In Ontario a tract of land like it in that respect, would be thought to be about as good as it could be and to be entirely suitable for all agricultural crops. The township is all prairie with no wooded growth except a little willow brush found about the two small lakes in the south part, and two clumps of willows found right on the north boundary in sections 34 and 35. There are no large hay-producing meadows, but, for all that, a deal of hay can be gotten in the township in narrow flats found along the several brooks and drainage courses, which are found scattered about over it. The township is well watered, there being brooks or permanent marshes everywhere and, with very trifling exception the water is all good and wholesome. There is one stream in the township which might be dignified with the name of creek, but is is very small and there are no falls on it. The valley or trough through which it flows, however, is quite deep and it would be quite possible to dam it in such a way as to form quite a sized pond, say from 50 to 100 acres. The stream feeding this would not likely ever be less than 4 inches deep, 2 feet wide, one mile per hour, and how much larger than this it is in freshet time, and how long it continues high, I am unable to say. Perhaps the average discharge of the year might be double this, for I should imagine that it is not high more than a month in the spring. Suitable places to put in such a dam can be found on sections 25 and 26. Any indications which I saw pointed to a dry climate with probable summer frosts. This was not a good season to judge as to dryness, there having been continuous light showers all summer long in this district. No fuel is found in the township of any kind, nor were beds of coal or lignite noticed anywhere in it. I have been told that quite a bit of wood is to be had along Battle river about six miles to the north, but I cannot vouch for this. No beds of rock were seen nor any places suitable for stone quarries. No useful minerals were discovered or seen. No large game was seen but ducks were very numerous in the marshes and lakes. Since completing the survey of this township I have heard that three squatters have gone into it one of whom has opened up quite a large store, with the object of being ahead of settlement and to trade in the meantime with the Indians on the reserves near by, and the few white settlers to the east and north.—*Fred. W. Wilkins, D.T.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN—RANGE 22.

Township 50.—The Onion lake trail from Battleford runs through the township, and is a fairly good road, with good bridges. The soil is generally a good dark clay loam with clay subsoil, the higher ground rather stony. The surface is rolling, and is about two-thirds prairie and one-third covered with a growth of small poplar and willows. There are a good many small ponds and sloughs with fresh water. The valley of the Saskatchewan is very rough and steep, from 200 to 250 feet deep, and about a mile wide between the upland on either side. It cuts the township from the middle of the western boundary to the southeast corner. The timber is principally scrubby poplar up to eight inches in diameter, and a good deal of dense willow brush. There is a little cottonwood scattered along the south bank of the river that would be suitable for building purposes. A good supply of hay can be obtained from small flats around sloughs. The grass is very long and thick throughout the township, and could probably be made into hay on much of the higher lands. The township is abundantly watered by Englishman river, a rapid stream about 50 links wide and three feet deep; also by the Saskatchewan and numerous ponds. None of the township is liable to be flooded. The climate is variable, but does not appear to be much subject to summer frosts. No water-power exists. The fuel is small poplar scattered throughout the township. No stone quarries and no minerals were observed. Numerous ducks and prairie chicken and some deer were seen. This township is suitable for stock-raising in a small way and general farming.—*T. S. Gore, D.L.S., 1903.*

Township 51.—The Battleford and Onion lake trail passes through the southwest corner of this township, and is a fairly good road. In the two most easterly tiers of sections the soil is good, but in the western and middle parts the soil is more sandy and stony. The township generally is best adapted for grazing purposes. The eastern part of the township is timbered pretty well with poplar running from 2 inches to 10 inches in diameter. The middle part is open prairie, and the western part prairie with clumps of poplar and willow. There is a quantity of good hay extending along English river and lakes and many other hay flats around sloughs. There is plenty of water, fresh and permanent, in ponds and lakes, also in English river, which is a rapid stream about 40 links wide and three feet deep. Some of the hay flats in the vicinity of English river are liable to be flooded over quite large areas after heavy rains. There are no water powers. The summer was very wet and cool. The only fuel is poplar, found more or less on nearly every section in the township. There are no stone quarries and no minerals. Plenty of ducks and prairie chickens during the season are to be found all over the township.—*T. S. Gore, D.L.S., 1903.*

Range 23.

Township 35.—A trail from Battleford to the forks of Red Deer river passes about a mile and a half east of the southeast corner of this township. With the exception of the crossing of the northern end of Tramping lake—which is liable to be soft in a wet season—this trail is in very good condition and affords the most convenient route for reaching the township. The soil is chiefly clay with a deposit of black or clay loam on the surface and is a first-class wheat growing country. The surface of the township is all rolling prairie—no timber whatever. Hay can be cut around all the sloughs, a good many of which go dry in the summer, but the prairie grass is short and thin. No large hay marshes were met with. The water in all the sloughs was found to be fresh but in the open lakes, slightly alkaline. No running water. In September there was more or less frost every night, but the days were fine and warm. A limited supply of fuel can be obtained near Tramping lake, but there is no quantity nearer than Battle river. There are no stone quarries. Ducks and geese were numerous and a few antelope.—*H. B. Proudfoot, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN—RANGE 23.

Township 36.—A trail crossing the Battleford and Swift Current trail near the 9th correction line, passes through this township, affording the most convenient route for reaching the same. This trail is very old and faintly marked in some places but is fairly dry. There are some steep hills on it at the south end of Tramping lake. The soil is all clay, in some places an alluvial deposit of clay loam of various depths, an excellent wheat soil. Surface is all rolling prairie, no timber whatever. Hay can be cut around most of the sloughs, but the prairie grass is short and thin. There is no running water. The water in the small sloughs was found to be fresh, but very alkaline in the open lakes. There is no water-power. Climate: in the beginning of September the weather was very fine, with heavy frost every night. A small quantity of dry wood was found around Tramping lake in range 20; no other fuel was found any nearer than that. There are no stone quarries or minerals. Game: ducks and a few antelope.—*H. B. Proudfoot, D.L.S., 1903.*

Township 37.—The Battleford and Tramping lake trail passes a few miles east of the east boundary of this township, affording the most convenient route for reaching it. The soil is mostly clay with an alluvial deposit of clay loam, eminently adapted for raising all kinds of grain. The surface of the township is all open rolling prairie and there is no timber. Good hay can be made around most of the sloughs; a considerable hay marsh occurs on the south tier of sections which was comparatively dry at the time of survey (October). With the exception of the large lake on the west boundary, which was very alkaline, the water in all the ponds and sloughs was fresh. No running water was met with. In the second week of October, 1903, the days were bright and warm but there were very heavy frosts every night. There is no fuel nearer than Tramping lake in range 20, where there is a limited supply of poplar and maple. There are no stone quarries or minerals. There were a few antelope, ducks and geese.—*H. B. Proudfoot, D.L.S., 1903.*

Township 38.—The Battleford and Tramping lake trail passes about 10 miles east of the southeast corner of this township, affording the most convenient route for reaching it. The soil is mostly clay with an alluvial deposit of clay loam, well adapted for wheat growing. The surface is all open prairie, on the west side of the large lake rolling and on the east side hilly. There is no timber of any kind. Hay can be cut around the sloughs and ponds, but there are no marshes of any great extent. The water in all the small lakes and sloughs is fresh but slightly alkaline in the large lake. There is no running water of any quantity. In the first part of October, 1903, the days were bright and warm but we had heavy frosts every night. There is no fuel in the township. The nearest was the dead timber around Tramping lake. There are no stone quarries or minerals. There are a few antelope, ducks and geese were numerous, but no prairie chickens were seen.—*H. B. Proudfoot, D.L.S., 1903.*

Township 39.—This township is reached from the Battleford and Sounding lake trail, which can be traced into township 41, range 22. This trail is in good condition. The township is open undulating prairie in the northern and western parts, with soil varying from a sandy loam to clay, second and third class, and suitable in most cases for farming. The southeast third of the township is open prairie, very rough and broken by ragged hills and lakes, and with stones and alkali in the hollows. The soil is mostly an alkaline clay, about fourth class. This portion of the township would be suitable for sheep ranching. Very little timber exists except a few poplar, measuring up to six inches in diameter, growing in the northern parts of sections 27 and 28 on the slope leading to Jay lake. The water in the lakes is very alkaline. Fresh water is scarce except in sloughs. A small fresh water creek flows out of the northwest quarter of section 28 into Jay lake. Another fresh water creek flows out of section 24 into End lake. The fuel is dried poplar procured from the northern parts of sections 27 and 28. No water-power exists in the township and no stone quarries, no hay and no indications of minerals were found. The climate is very good. The game found is for the most part wild ducks. Section No. 1 is open prairie, broken by hills and ravines, the hollows containing stones, wild cactus and traces of alkali. A wagon trail

crosses the southeast quarter of this section. Section No. 2 and the east half of section No. 3 are very rough and broken by ragged hills and gorges. Stones occur on the top of these hills. The hollows show traces of alkali. These are suitable for sheep ranching. The west half of section 3 is nearly covered by Ear lake. Sections Nos. 4, 5, 6, 7, 8 and 9 are open gently rolling prairie. Sections 6 and 7 contain many small sloughs. Sections 5, 9, 8 and 4 have a slope towards Ear lake; they are all suitable for farming. The northwest quarter of section 10 is open rolling prairie with gravel ridges; it is suitable for pasturing. The southwest quarter is broken by Ear lake; good pasture exists about this lake. The east half is broken by hills and ravines and is suitable for sheep ranching. Sections 11, 12, 13, 14, 15 and the east half of 16 are open prairie, very rough and broken by ragged hills and ravines containing stones, alkali and wild cactus. These are suitable for sheep ranching. Section 14 and the northwest quarter of 13 are broken by End lake. The west half of 16 and the north half of 17 are low and wet and contain many alkali sloughs and loose stones. The northwest quarter of 17 is broken by Reed lake. The south half of 17 is gently rolling prairie with scattered patches of willow scrub, and is suitable for farming. Section 18 is broken in the north half by Reed lake; the remaining part is open rolling prairie and suitable for farming. Sections 19 and 20 are open high rolling prairie with gravel ridges, and are suitable for pasturing. The south half of 19 and southwest quarter of 20 are broken by Reed lake. Section 21 is open high rolling prairie with gravel ridges and suitable for sheep ranching. Sections 22, 23 and 24 are very rough and broken by ragged hills and ravines, and are suitable for sheep ranching. Traces of alkali exist in the hollows. Section 23 and the west half of 24 are nearly covered by End lake. Section 25 and the south half of 26 are broken by a coulee containing ragged hills, stones and alkali. The north half of 26 is open rolling prairie, and suitable for pasturing. Section 27 and the south half of 28 are open, gently rolling prairie with many sloughs, and suitable for farming. The northwest quarter of 28 is broken by a ravine leading to Jay lake and the northeast quarter is broken by the lake itself. Some poplars grow on the south side of this lake measuring up to six inches in diameter. A fresh water creek flows out of the northwest quarter into Jay lake. Sections 29 and 30 are open rolling prairie suitable for pasturing. Sections 31, 32 and 33 are open gently rolling prairie and suitable for farming. The south half and northeast quarter of section 34 are broken by Jay lake. The northwest quarter is open gently rolling prairie suitable for farming. Section 35 is broken in its west half by Jay lake; the land adjoining the lake is rough, but back from the lake is open gently rolling prairie suitable for farming. The east half of section 35 and the west half of section 36 are broken in the central part by a ravine leading from Jay lake. Back from the ravine the land is suitable for farming. The east half of 36 is broken by a deep coulee, containing stones and alkali. It is the same coulee which crosses township 40 diagonally, and seems to terminate in End lake, although there are several gaps which lead towards Muddy lake.—*Lennox T. Bray, D.L.S., 1903.*

Township 40.—This township is reached by the Battleford and Sounding lake trail which can be treced into township 41, range 22. No traces of this trail could be found in township 40, range 23. Sections 1, 12, 13, 14, 23, 24, 22, 27, 26, 28, 29, 30, 31, 32 and 33 are rough and broken by a large coulee which contains alkaline sloughs, stones and willow scrub. That portion of the township north of this coulee is open nearly level prairie and suitable for farming. The portion south of the coulee is open gently rolling prairie and in most cases suitable for farming. The soil is a deep rich loam with a sandy subsoil and classed first, second and third. Poplar timbers occurs to a limited extent in the ravines in the eastern part of section 33 and on the slope of the coulee in the northern parts of sections 28 and 29. Some trees were found measuring up to 8 inches in diameter. The water in the lakes of this township is very alkaline,

but fresh water is found in the sloughs which in the central southern part are very plentiful. A fresh water spring creek with its source in section 27 flows northwesterly across sections 28, 33 and 32 into Gull lake. A good hay meadow and marsh covers the eastern part of section 26, the southern part of section 36 and most of section 25, and hay also exists on the northeast quarter of section 4. The fuel is dried poplar procured from the northern parts of section 28 and 29. There are no water powers in this township, no stone quarries and no indications of minerals. The game is wild ducks, muskrats and antelope. The climate is very good. Section No. 1 is broken in its east half by a large coulee containing stones and alkaline sloughs. Its west half is open rolling prairie suitable for farming. Sections 2 and 3 are open gently rolling prairie suitable for farming. The northwest quarter of section 3 and the northeast quarter of section 4 are broken by a large marsh with good hay on its western side. The west halves of sections 4, 5 and 6 are open rolling prairie with some sloughs and are suitable for farming. Sections 7, 8 and 9 are open rolling prairie with a number of sloughs; these sections are suitable for farming. The southwest quarter of section 10 is nearly covered by Microbe lake, the remainder of the section and section 11 are open rolling prairie with a number of sloughs and are suitable for farming. Section 12 is broken by a large coulee containing alkaline sloughs and stones in its central part and by sand hills in its western part. The central northern part is covered by Sink lake. The remaining eastern part is open gently rolling prairie. Section 13 is broken in its west half by a large coulee containing lakes, stones and alkali. Sink lake covers the most of this half. The east half is broken on its west side by ravines leading to the coulee. The rest of this half is open gently rolling prairie suitable for farming. Section 14 is broken in its north half by a coulee. Gordon lake covers a part of the northeast quarter. The southeast quarter is broken by sand hills. The southwest quarter is open gently rolling prairie with some sloughs and is suitable for farming. Section 15 is broken in its northeast quarter by small sand hills, the rest of this section is open gently rolling prairie with some sloughs and is suitable for farming. Sections 16, 17 and 18 are open rolling prairie with a number of sloughs and are suitable for farming. Sections 19 and 20 are rolling prairie with scattered patches of willow and poplar scrub; they are suitable for farming. Section 21 is open gently rolling prarie with some sloughs, and is suitable for farming. Section 22; the north half and southeast quarter are broken by coulees and sand hills. The southwest quarter is open gently rolling prairie and suitable for farming. Section 23 is nearly all broken by coulees. Gordon lake covers most of the southeast quarter; this section is suitable for pasture land. Section 24 is broken in its southwest quarter by the coulee and ravines. The east half and northwest quarter are open gently rolling prairie suitable for farming. Section 25 is nearly level prairie covered by a good hay meadow and marsh. Section 26 is broken in the southwest corner by ravines running to the coulee. The rest of this section is open nearly level prairie suitable for farming. The east half is partly covered by a hay meadow. Section 27 is open nearly level prairie in its northeast quarter and suitable for farmnig. The rest of this section is broken by ravines and coulees. A fresh water spring creek flows out of this quarter into section 28. The southwest quarter of section 28 is gently rolling prairie with scattered bluffs of willow and poplar scrub. The remainder of the section is broken by the coulee and sand hills. Some poplar grows on the north half of this section measuring up to 8 inches in diameter. A fresh water spring creek flows across the north half. Sections 29 and 30 are gently rolling prairie in their south halves with scattered patches of willow and poplar scrub and are suitable for farming. The north halves are broken by sand hills and ravines running to a coulee. Some poplar grows on the north half of section 29 measuring up to 8 inches in diameter. Section 31 is broken by sand hills. Gull lake covers a part of the northeast quarter. Section 32 is in the coulee. It is broken in its south half by sand hills and the north half by Gull

lake. A fresh water spring creek flows across the northeast quarter into Gull lake. Section 33 is broken by deep ravines and a coulee; in some of the ravines poplars were found measuring up to 8 inches in diameter. The northeast quarter is open nearly level prairie. A fresh water spring creek flows northwesterly across the south half of this section. The southwest corner of section 34 is broken by ravines running to a coulee. The rest of this section and section 35 are open nearly level prairie and suitable for farming. Section 36 is open nearly level prairie in its north half and southwest quarter and is suitable for farming. The southeast quarter is nearly covered by a good hay meadow and marsh.—*Lennox T. Bray, D.L.S., 1903.*

Township 41.—This township is reached by the Battleford and Sounding lake trail, which can be traced into township 41, range 22, but through township 41, range 23, no traces of it could be found. The trail is in good condition. The soil varies from a light loam with a white sand subsoil to a heavy loam underlaid by clay. The eastern part is open and nearly level prairie, and although the soil is light, indications point to its being suitable for farming from the abundant growth of grass. The western part is broken by a large coulee which contains lakes, stones and alkali, with many deep ravines leading to it. Poplar trees are found in some of the ravines measuring up to eight inches in diameter. This part of the township is suitable for ranching. The only timber in the township grows in the ravines in the western parts of sections 4, 9, 8 and 18; it is poplar and will measure in some cases up to eight inches in diameter. The supply, however, is scarce. Some hay, though of poor quality, occurs on sections 7 and 18 about the lakes; also on section 31 in the flats of the coulee. The water in the lakes located in the coulee is very alkaline. The water in Muskrat lake is less alkaline and can be used. A fresh water spring creek rising in section 33 flows westerly across sections 32 and 31; another fresh water spring creek with source in section 4 flows westerly into Gull lake. Another creek flows out of Muskrat lake southerly, leaving the township near its southeast corner. The water in the sloughs in the higher parts of the township is fresh, while in the coulee it is very alkaline. The fuel is dried poplar, procurable from the ravines in section 4. There are no water-powers in this township, no stone quarries and no indications of minerals. The climate is good. The game is wild duck, geese, muskrats and antelope. Sections Nos. 1, 2, 3, 10, 11, 12 and the east halves of sections 9 and 4 are open and nearly level prairie suitable for farming. Section 13 is open level prairie, broken by Muskrat lake, and is suitable for farming. Sections 14 and 15 are level prairie with a few patches of willow scrub, and is suitable for farming. Sections 16 and 17 are open gently rolling prairie, suitable for farming. The southwest quarter of 17 is broken by a coulee and ravines. Some poplars occur in these ravines up to six and eight inches in diameter. The west half of section 20 is open rolling prairie. The east half of section 20 and sections 21 and 22 are gently rolling prairie suitable for farming. Sections 23 and 24 are open gently rolling prairie. Section 23 is broken in its east half by Muskrat lake, and section 24 is broken in its southwest quarter by the same lake. These sections are suitable for farming. Sections 25, 26 and 27 are open gently rolling prairie, with some sloughs, and are suitable for farming. Sections 28 and 29 are open rolling prairie suitable for ranching. Sections 36, 35 and the east half of 34 are open gently rolling prairie, and suitable for farming. The west half of section 34 and sections 33 and 32 are prairie broken by ravines and hills, and are suitable for ranching. A deep ravine starting in section 33 runs westward across sections 32 and 31. This ravine contains poplar up to six inches in diameter and a fresh water spring creek. The west halves of sections 4 and 9 are very rough and broken by deep ravines containing poplar up to eight inches in diameter. They are more suitable for ranching. Section 5 and the east half of section 6 lie in a large coulee and are very rough and broken by high hills and Gull lake. The west half of section 6 is very rough and broken by sand hills. Section 8 is

very rough and broken by a coulee and deep ravines containing poplar up to eight inches in diameter. Section 7 is very rough and broken in its eastern half by deep ravines. The west half is in coulee flats and is marshy and covered by alkali. Some hay, though of poor quality, grows on these flats. The northwest quarter is broken by Lonely lake. Section 18 is broken in its west half by Lonely lake, and this half is in the flats of a coulee which is covered with alkail, but some hay grows in it. The east half of section 18 is broken by deep ravines running a coulee and deep ravines. A fresh water spring creek flows westerly across section 31. are open high rolling prairie broken to some extent by ravines, some of which contain poplar up to eight inches in diameter. The west halves are very rough and broken by a coulee and deep ravines. A fresh water spring creek flows westerly across section 31. These sections are suitable for ranching. This coulee which starts in the south boundary of section 4 and breaks the western tier of sections, contains alkaline sloughs and stones. Its banks are high and very rough and broken. It is known by the name of the 'crooked valley.'—*Lennox T. Bray, D.L.S., 1903.*

Township 42.—This township is reached by the Battleford and Sounding lake trail which can be traced into township 41, range 22. This trail is in good condition. The soil varies from a deep rich loam underlaid by a sandy clay subsoil to a stiff clay underlaid by gravel. The southeastern and central parts of this township are open and nearly level prairie and suitable for farming. The northeastern part is open prairie broken by numerous hills and some sloughs. This part is suitable for pasture land. The western part is rough open prairie broken by ravines and hills with stony ridges and suitable for pasture land. Timber is scarce. The ravines in the western parts of sections 6, 7 and 18 contain poplar measuring up to 8 inches in diameter. The supply, however, is very limited. Hay of a fair quality exists in the northwest quarter of section 32 and the southeast quarter of section 25. There is no water in the southeastern part. The central and northern parts have occasional sloughs containing fresh water. A fresh water spring creek flows out of section 26 into Clear lake, which is also fresh water. The water in Scrub and Schmidt lakes is very alkaline. A good fresh water spring creek flows out of section 18 southwesterly through section 7. Another spring creek with its source in section 5 flows westerly across section 6. The fuel is dried poplar procured from the ravines in the western parts of sections 6, 7 and 18. There are no water-powers in this township, no stone quarries and no indications of minerals. The climate is good. The game found is for the most part wild ducks. Sections 1 and 2 are open nearly level prairie suitable for farming. Sections 3 and 4 are open gently rolling prairie. A low ridge of hills crosses the southeastern corner of section 3. These sections are suitable for farming. Sections 5 and 6 are high rolling prairie broken by small hills and ravines and are suitable for ranching. A ravine containing poplar up to 8 inches in diameter, starting in section 5, crosses the north half of section 6 in an easterly and westerly direction. A small spring creek flows down this ravine. Section 7 is very rough and broken in the northeast part by a coulee and the west half by a deep ravine, containing poplar up to 8 inches in diameter. A spring creek flows down this ravine. The southeast quarter is broken by hills and is suitable for ranching. Section 8 is broken in the west half by a coulee. The east half is open rolling prairie suitable for ranching. Sections 9 and 10 are open gently rolling prairie suitable for farming. Sections 11, 12, 13, 14, 15 and 16 are open nearly level prairie suitable for farming. A low ridge of hills crosses the northern parts of 14 and 15. Section 17 is open rolling prairie in its east half and suitable for farming. The west halves of sections 17 and 18 are rough and broken by a coulee, ravines and hills with stony ridges. They are suitable for ranching. A ravine running southerly out of west half of 18 contains poplar up to 8 inches in diameter. Fresh water spring creek flows in this ravine. Sections 19 and 20 are open prairie broken by hills with stony ridges, and are suitable for ranching. Section 21 is is broken in

the northwest part by small hills. The remaining part is open rolling prairie suitable for ranching. Section 22 is open gently rolling prairie suitable for farming. Sections 23, 24, 25 and 26 are open prairie, rough and broken by small hills and sloughs and are suitable for ranching. Sections 25 and 26 are broken in the northeast and northwest quarters by Clear lake. A fresh water spring creek flows out of the nortwest quarter of section 26 into this lake. Section 27, except for a low range of hills running northeast from the southwest corner is nearly level prairie and is suitable for farming. Section 28 is open rolling prairie in the north half and broken by hills in the south half and is suitable for ranching. Section 29 is broken in the east half by small hills, but the west half is open rolling prairie and suitable for farming. Sections 30 and 31 are open prairie, rough and broken by sloughs and hills with stony ridges and suitable for ranching. Section 32 is open prairie broken in the west half by small hills and in the east half by Scrub lake. Section 33 is open nearly level prairie in the north half and gently rolling prairie in the south. A small hay meadow exists on the northwest quarter. The western side is broken by Scrub lake. This section is suitable for farming. Section 34 is open gently rolling prairie with many sloughs. A low range of hills crosses the northeast quarter. Section 35 is open gently rolling prairie with many sloughs in the north half and southwest quarter. The southeast quarter is nearly covered by Clear lake. This section is suitable for ranching. Section 36 is rough and broken by hills and sloughs in the south half. The southwest quarter is broken by Clear lake. This half is suitable for ranching. The north is open gently rolling prairie, and suitable for ranching.—*Lennox T. Bray, D.L.S., 1903.*

Township 43.—This township is reached by means of the Battleford and Ribstone creek trail which traverses township 45, range 23, about a mile north of its south boundary. There is also an old wagon trail entering this township near the northeast corner of section 35 and leaving it again near the northwest corner of section 7. This trail, however, is almost indistinct. It evidently is an old trail leading from Poundmaker's Indian reserve to Calgary. The soil is a good rich loam with a variable subsoil of clay and sand. The surface is open and gently rolling prairie in the southeast and eastern parts of the township, but is broken by a small coulee running from near the north boundary and tapering out near the southeast corner of the township. The remaining portion of the township is open rolling prairie broken by small hills and many sloughs, the northwestern part becoming very rough and broken by sloughs and hills up to about 50 feet in height. Hay can be obtained about the sloughs throughout the western part of the township. A small hay meadow of very good quality lies on the southwest quarter of section 3. The water through the township is altogether from sloughs, is plentiful and mostly fresh. The water in the lakes, however, is alkaline. There is no timber in the township, no water-power, no stone quarries, no fuel and no indications of minerals were found. The nearest fuel that could be found was procured from sections 5 and 6, township 43, range 24, and was dried poplar. The supply is not large. The climate is good. The game is wild duck and muskrat. Commencing in the shape of a small ravine in the western half of section 36, a coulee traverses in a winding course sections 25, 26, 23, 24, 13, 12 and runs out in section 1. The banks of this coulee in some places measure 100 feet. A couple of fair sized lakes occur in this coulee, sloughs are also scattered throughout its length and there are some stones and traces of alkali. Section No. 1 is open rolling prairie. An alkaline lake covers the larger portion of the southwest quarter. The east half is more or less broken by sloughs. The northwest quarter is less broken and could be farmed. Section No. 2 is open rolling prairie in the east half, becoming nearly level in the west, with many sloughs and is suitable for farming. Section No. 3 is open rolling prairie in the southwest quarter broken by small hills and sloughs, the remaining portion is nearly level prairie with a good many sloughs, and the whole is suitable for farming. A hay meadow of very good quality occurs on the southwest quarter. Sections 4, 5, 6,

7, 8, 9, and the west half of section 10 are open rolling prairie broken by small hills and sloughs and are suitable for ranching. The east half of sections 10 and 11 and the west half of section 12 are open gently rolling prairie suitable for farming. Section 13 and the east half of section 12 are broken by the coulee. Section 14 and the east half of section 15 are open gently rolling prairie suitable for farming. The west half of section 15 and sections 16, 17, 18, 19, 20, 21, 22 and 23 are open rolling prairie broken by hills and sloughs and are suitable for ranching purposes. Section 23 is broken in the northwest quarter by Raspberry lake. The southwest corner of section 24 and the northwest corner of section 25 are broken by coulees. The remaining portions of the west halves of these sections are gently rolling prairie and are suitable for farming. The east halves of these sections and a portion of the southwest quarter of section 36 are rough and broken by a coulee which touches the township at the east. The northeast quarter of section 36 is first class prairie suitable for farming. The west half of this section is broken by the coulee and Yellow Snake lake. Section 26 is rough and broken by ravines and Raspberry and Yellow Snake lakes. The southeast quarter of section 35 is broken by Yellow Snake lake. The southwest quarter is broken by One lake. The north half of this section is open rolling prairie suitable for farming. The east halves of sections 22 and 27 are rough and broken by ravines. The west halves of these sections, together with section 34, are open rolling prairie with some sloughs and are suitable for farming. Sections 28, 29, 30, 31, 32 and 33 are open prairie, rough and broken by sloughs and hills and are suitable for ranching.—*Lennox T. Bray, D.L.S., 1903.*

Township 44.—This township is best reached from the Battleford and Ribstone creek trail, which traverses township No. 45, range 23, about 1 mile north of its south boundary. There is also a wagon trail passing through sections 35, 34, 27 and 21 of this township, which leads from a deserted hut and corral on the southeast quarter of section 21. It evidently joins the Battleford and Ribstone creek trail somewhere in section 2, township 45. The soil of this township is a rich loam underlaid by a sandy clay subsoil. Parts of the sections in the eastern part of the township which are open prairie are suitable for farming. In the western part of the township the surface is open, very rough and broken by hills, lakes and sloughs. A hay meadow and marsh occurs in the southeast part of section 34 and covers the eastern part of sections 27, 22 and 15. This hay is of good quality and in previous years has been cropped. Several good sized lakes lie in this township, but the water in them is stagnant and alkaline. Fresh water, however, is to be found in some of the smaller sloughs. There is no timber in the township, no water-power, no stone quarries and no indication of minerals. The fuel is dried poplar and can be procured from about the centre of township 45, range 23. The climate is very good. Wild ducks and muskrats are found. Section 1 is open gently rolling prairie suitable for farming. The southeast quarter section is broken by several small ravines leading in a northeasterly direction. Section 2 is open gently rolling prairie suitable for farming; the northwest quarter is more rolling and contains small hills and sloughs. Section 3 is open gently rolling prairie in the south half suitable for farming. The north half, however, is more rolling. In section 4 the southeast quarter is open gently rolling prairie and suitable for farming, the remaining part being high rolling prairie suitable for ranching. Sections 5, 6 and 7 are open prairie rough and broken by sloughs and hills up to 50 feet high; these sections are suitable for ranching. Section 8 is open hilly prairie broken in its central part by an alkaline lake and in its eastern part by sloughs. Section 9 is open rolling prairie in its east half and broken by hills and sloughs in its northwest quarter. The southwest quarter is nearly covered by an alkaline lake. Section 10 is open rolling prairie suitable for farming. Sections 11, 12, 13 and 14 are nearly level prairie, with an occasional hill and slough; these are suitable for farming. Section 15 is open, gently rolling prairie suitable for farming. The northeast quarter is nearly covered

by a good hay meadow and marsh. Sections 16, 17, 18 and 19 are open prairie, rough and broken by sloughs and hills; they are suitable for ranching. Section 17 is broken in its central southern part by an alkaline lake. Section 20 is broken by alkaline lake which covers the central part and lies in a northwest and southeast direction. Northeast of this lake the surface is gently rolling and suitable for farming. To the southwest of the lake the surface is rough and broken. Section 21 is broken in its southwest quarter by an alkaline lake extending out of section 20. Its southeast quarter is nearly covered by another alkaline lake. The remaining part of the section is open rolling prairie suitable for ranching. A wagon trail leads from a deserted hut and corral situated on the southeast quarter of this section in a northeasterly direction to the north boundary of this township. Section 22 is broken near its southwest part by an alkaline lake extending out of section 21. Its east half is nearly covered by a good hay meadow and marsh. The remaining part of the section is open rolling prairie suitable for ranching. Sections 23, 24, 25 and 26 are open, gently rolling prairie, with an occasional hill and slough, they are suitable for farming. The northwest quarter of 26 is almost covered by a good hay meadow and marsh. The east half of section 27 is nearly covered by a good hay meadow and marsh. Its west half is open rolling prairie suitable for ranching. A wagon trail crosses the section in a northeasterly direction. Section 28 is open, gently rolling prairie in its southwest quarter. Its northwestern part is broken by an alkaline lake, the remaining part of the section being open rolling prairie suitable for ranching. Section 29 is broken in its northeastern part by an alkaline lake extending out of section 28; the remaining part of the section is open rolling prairie suitable for ranching. Sections 30, 31 and 32 are open prairie, rough and broken by hills and sloughs and suitable for ranching purposes. Section 33 is open rolling prairie broken by hills and sloughs. It is broken in its southwest quarter by an alkaline lake extending out of section 28 and its northwest quarter is nearly covered by another alkaline lake. Section 34 is open rolling prairie suitable for ranching. Its southeast quarter is less rolling and suitable for farming. A wagon trail crosses this quarter in a northeasterly direction. Section 35 is open gently rolling prairie in its south half and suitable for farming. The southern portion of this half is covered by a good hay meadow and marsh. The north half is open rolling prairie suitable for ranching. A creek, though of no apparent flow, leads from the hay marsh into section 36 and then back into the northeast quarter of section 35, leaving it at the north boundary of the township. A wagon trail crosses this section running northerly. Section 36 is rolling prairie broken by a few hills with scattered patches of willow scrub; it is suitable for ranching. A creek enters the southwest quarter of this section out of section 35 and leaves it again at the west boundary of the northwest quarter. This creek has no apparent flow.—*Lennox T. Bray, D.L.S., 1903.*

Township 52.—This township was reached by taking the Hudson's Bay Company's old trail from Carlton to Fort Pitt, passing on the south side of Jackfish lake and branching off the Emmaville trail and entering the township in section 13. The trail was dry but the Emmaville branch very rough. The surface of this township is from rolling to hilly prairie dotted with clumps of poplar and willow brush, and bluffs of poplar. Sections 6 and 7 are nearly covered with poplar bluffs and scrub. The bluffs will supply good fuel, fencing and rough building timber. Two large lakes appear, one in sections 23, 24, 25 and 26. A large creek from the north runs into this lake in the northeast quarter of section 26 and runs out at the southeast end of the lake. The second lake lies in sections 32 and 33 and has no outlet. Both lakes have been traversed. A large slough or hay marsh runs through sections 10, 16, 20, 29 and 30. A small creek runs westward out of this marsh. Numerous sloughs are found all over the township and in ordinary dry seasons from 300 to 600 tons of hay could be cut in the township, mostly along the creek in sections 26, 35 and 36, and around the slough in the centre of the township. In wet seasons this quantity could not be cut. The soil is a

fair sandy loam, mostly sand subsoil, well suited for grazing purposes, but not fit for farming. The water is fresh in all the lakes, creeks and sloughs. No timber for lumbering purposes. No minerals or stone quarries are found in the township. The climate was wet and cold with frequent frosts in the latter part of August. Ducks and prairie chickens are plentiful; no deer. A bear was seen on Bear hill in the southwest part of this township. A surveyed trail from Battleford to Onion lake enters the township in the southwest quarter of section 3 and leaves it in the southwest quarter of section 30. The mail trail from Emmaville to Onion lake runs diagonally northwesterly through the northeast quarter of the township, entering the township in section 13 and leaving it in section 33. One rancher has squatted on section 26.—*Wm. R. Reilly, D.L.S., 1903.*

Township 53.—This township is from rolling to hilly, thickly dotted with bluffs of poplar from 3 to 8 inches in diameter, willow and poplar scrub. The heaviest bluffs are found in the northeast corner of the township, but otherwise are pretty evenly scattered all over the township. Bluffs will supply good fuel, fencing and timber, for rough log buildings. This township is very much cut up by creeks, lakes and sloughs. Five lakes were traversed. One on the east boundary in sections 1 and 12. One on the south boundary in sections 4 and 5. One on the west boundary in sections 7 and 18. One on the southeast quarter of section 18, and one in sections 27 and 28. A large creek enters the township at the north in the northeast quarter of section 36 and flows nearly south, leaving the township in section 2 and flows into a large lake in the township to the south. Another large creek enters the township in the northwest quarter of section 33 and flows nearly south into the lake in sections 27 and 28, then southwesterly to the lake on the west boundary in section 18. The land is very flat along the creeks and on the west side of the lake in section 28 and around the lake in section 18. In favourable seasons a great quantity of hay can be cut all along the creeks and around the lakes mentioned. Many sloughs are found in the south half of the township, some of them good hay producers, especially in sections 9 and 10. I would estimate that from 1,000 to 1,500 tons of hay could be cut in this township. The water in all the creeks, lakes and sloughs is fresh. The soil is a black sand loam from 2 to 6 inches deep overlying a clay subsoil on the east side of the township and runs into a sandy subsoil to the west. Classed 2, 3 and 4. This township is an ideal one for stock raising purposes, abundance of grass, hay, water, fuel, fencing and rough building material, but it is not adapted for farming. No minerals, no stone quarries and no timber for lumbering purposes are found. The mail trail from Emmaville to Onion lake runs northwesterly through sections 4, 5, 8 and 7. An old trail runs easterly through sections 17, 21, 22, 27, 26 and 25, with a branch from section 27 running nearly north. Ducks and prairie chickens are plentiful. Some jumping deer were seen on the north of the township, but no other noticeable game. Climate, wet and cold, sunshine and showers alternately; some frosts. One rancher is squatted on section 18.—*W. R. Reilly, D.L.S., 1903.*

Range 24.

Township 35.—At present the best way of reaching this township is by the old military trail from Battleford to Swift Current. The soil which is a rich clay is eminently adapted for wheat raising. The whole township is rolling prairie, no timber of any kind. There is good hay around most of the sloughs. A water course runs through this township, but evidently it only flows in the spring of the year. Its water is evidently fresh. No water-power is available. We had frost every night after September 1. There is no fuel, exposed ,rock or minerals. There are a few ducks but mighty hard to shoot.—*H. B. Proudfoot, D.L.S., 1903.*

TOWNSHIPS WEST OF THE THIRD MERIDIAN—RANGE 24.

Township 36.—The most convenient method of reaching this township is via the trail running southwest from Battleford and passing the northerly end of Tramping lake, a branch of which passes westerly through this township. The soil is clay and eminently adapted to grain growing. The surface is open rolling prairie, no timber whatever. The water in the sloughs, &c., is generally good; very little alkaline water was found. Good hay can be cut around all the sloughs. This year (1903) the sloughs were nearly all dry and afforded a good chance for hay making. There was no running water. The survey of the township was made in the latter end of September, the days were fine and warm, but there was frost every night. No fuel of any kind nearer than Tramping lake in range 20 and that was very limited. There are no minerals or exposed rock. A few ducks and antelope were seen.—*H. B. Proudfoot, D.L.S., 1903.*

Township 37.—The township is reached from Battleford going southwesterly on the trail passing the Ear hills, thence westerly to the township. The soil is a rich clay good for grain-growing. The surface is generally high rolling prairie with a few ravines towards the north end of the township. There is no timber in the township. There is a large hay marsh on sections 5 and 6, and hay may be cut to advantage around all sloughs. There is supposed to be a water course through the township, but at the time of survey no water was running. The water in the sloughs, &c., is generally fresh. During time of survey (September) we had warm days but frost every night. There is no fuel. We drew our wood from Tramping lake. There are no minerals and no exposed rock. A few antelope were seen. Ducks, chicken and geese were scarce.—*H. B. Proudfoot, D.L.S., 1903.*

Township 38.—This township is most easily reached by the Battleford-Sounding lake trail, which passes about eight miles north of the north boundary. The surface is all rolling prairie, no timber whatever being met with. The soil, generally clay loam with a rich clay subsoil, is eminently adapted for grain-growing. No hay marshes, minerals, quarries or water-powers were in evidence. Antelope and ducks are numerous but chickens are scarce. Water in ponds and sloughs is fresh.—*H. B. Proudfoot, D.L.S., 1903.*

Township 40.—The Sounding lake trail from Battleford enters this township at the southeast corner of section 25 and leaves it near the southwest corner of section 5. The latter part of the trail is indistinct and but little used. The greater part of the township is a clay loam, suitable for grazing, and where not too hilly, suitable also for farming. Sections 35 and 36, however, are sandy and not suitable for either. A valley about 250 feet deep runs from section 25 southwesterly to Edward lake on the western boundary of the township in section 7. This valley is about a mile in width; its bottom and hillsides are for a great part boggy and unfit for farming. An arm of this valley of about the same width runs northerly from near the centre of the township and takes in the greater part of sections 27, 28, 33 and 34 and dies away in township 41. The most of sections 29, 30, 31 and 32 are prairie and good farming. All south of the valley is an undulating prairie good for either farming or grazing. The sandy parts of the township and the hillsides are pretty well covered with small poplar and scrub; there is no large timber. There is no hay growing in the township. The high parts of the township are fairly well watered with numerous fresh ponds and sloughs, which, however, are not permanent. The lakes are all strongly alkaline. There are two good springs emptying into Fire lake from the hills in sections 8 and 9, and there is also a good spring enters Fox lake from near the centre of section 4, township 41. There are no water-powers. The general indications are that the season is somewhat late in opening. There was a heavy snowstorm on May 22 and a frost early in June. There was no other frost until the first week of September. The only fuel is poplar wood, which can be conveniently gotten except in the south and southeast parts of the township. There are no outcroppings of rock and no minerals. Ducks, geese and

prairie chickens were common; foxes, wolves and red deer were also seen.—*Herbert J. Bowman, D.L.S., 1903.*

Township 41.—The route to the township is along the Sounding lake trail from Battleford as far as township 40, range 23; the trail is very little used. Almost the entire township is a succession of sand hills interspersed with numerous ponds and lakes, some of which are of considerable size. Parts of sections 5, 6, 7 and 8 are, however, of a clay loam and suitable for grazing, and the greater part of sections 25 and 36 lying in the valley at the south end of Seagram lake is very fertile and well suited for farming. Bluffs of poplar are found on the sand hills and hillsides all over the township, but it is chiefly scrubby and seldom reaches a greater diameter than 6 inches. There is a good supply for fuel but no building timber. Parts of sections 24, 25 and 36 produce hay of fair quality but not in large quantities. Very little hay is to be had in any other part of the township. Small fresh water ponds are common in all parts of the township, but the larger ones and all the lakes are strongly alkaline. A good permanent spring runs southerly from near the centre of section 4, and a small creek of fresh water enters Seagram lake from the east in section 36. Throughout the water supply is sufficient and permanent. The land for a short distance from the east end of Seagram lake and those nearer Henry lake and Ahrens lake are likely to be flooded to a depth of about 6 inches, until the latter part of May. There are no water-powers. The general indications are that the season is somewhat late in opening. There was a heavy snowstorm on May 22, and a heavy frost early in June, but no other frost until the first week in September. The only fuel is poplar wood which may be obtained readily in almost any part of the township. In a few places in sections 2, 3, 4, 9 and 10 it is dry, being fire-killed. There are no outcroppings of rock in the township and no minerals. Large numbers of ducks are to be had on all the ponds and lakes. Prairie chickens, curlew, snipe and plover are also plentiful. This township lies in an immense valley sometimes known as the 'round valley,' and stretching northwesterly towards Manito lake. The bottom of the coulee is over 200 feet below the level of the prairie to the east. The easterly boundary of the township runs for some distance on the side hill, namely along the east boundaries of sections 24 and 25.—*Herbert J. Bowman, D.L.S., 1903.*

Township 42.—The route to the township from Battleford is along the Sounding lake trail which is quite distinct as far as township 42, range 21, west of the third meridian. From here a course due west over the prairie may be taken. That part of the township south of Seagram lake is quite similar to township 41, range 24, being almost entirely sandhills with considerable brush and scrub, but no large timber. The northern part is a clay loam and except in the neighbourhood of Seagram and McLean lakes, where it is very hilly, the land is a heavily rolling prairie fairly well suited for farming and grazing, though in some places rather too stony. In sections 3, 4, 5, 7, 8 and 9 there are small bluffs of poplar trees suitable for fuel only. In section 6 at the end of Clare lake there is some poplar and balm of Gilead, suitable for small building timber. Small building timber can also be had in the ravines and on the hillsides reaching back from Seagram and McLean lakes in sections 13, 14, 15, 16, 17 and 18. There are also small bluffs of scrubby trees throughout the northwest portion of the township. There are no flats or marshes of any account producing hay. In the northern part of the township there are numerous sloughs and ponds of fresh water. Many of them are quite large and probably permanent, but the smaller ones dry up. In the hills which run across the township from east to west about the centre, there are a number of springs of excellent water. A creek whose flow depends much upon the weather runs from Clare lake, which is fresh, into Seagram lake at its westerly end. That part of Seagram lake lying west of the central line of the township is very saline, while the rest of it and McLean lake are alkaline. There is no part of the township likely to be flooded. There are no water-powers. The general indications are

that the season is somewhat late in opening. There was a heavy snowstorm on May 22 and a frost early in June. There was no other frost until the first week in September. The only fuel is poplar and balm of Gilead. Except in the northeast quarter of the township sufficient quantities can be obtained conveniently. There is no sign of rock in place, but in the northern part of the township there is an unlimited supply of granite boulders for building purposes. There are no minerals, though the action of the magnetic needle in section 16 near Seagram lake indicated iron. There are large numbers of duck on the ponds and lakes; prairie chickens are also numerous. In the northern part foxes, wolves, antelope and red deer were seen.—*Herbert J. Bowman, D.L.S., 1903.*

Township 43.—This township is best reached by the Battleford and Ribstone creek trail, which crosses the southern tier of sections in township 45, range 24. There is also a trail though rather indistinct, crossing in a southwesterly direction section No. 1, which the Indians say leads from Poundmaker's reserve to Calgary. The soil of this township is a good rich loam, with a clay and sand subsoil, but owing to the broken and uneven surface, it is unsuitable for farming; it, however, would be suitable for ranching purposes. The surface is broken by hills from twenty to fifty feet high and numerous small sloughs. Some poplar and willow scrub occurs on the western tier of sections, also on sections 4, 5, 8 and 9. The remaining parts of the township are open prairie. There is no timber except a few small bluffs of poplar measuring below 6 inches in diameter, situated on sections 5 and 6. Good hay is found in the southwest quarter of section 14 and the northwest quarter of section 11, it also occurs on the west half of section 2 and the east half of section 3 and on the northeast quarter of section 24 and the southwest quarter of section 25. The only fuel in this township is dried poplar procured off sections 5 and 6, and only a few are to be found. The water in the township which is from sloughs is fresh and plentiful. There are no water-powers in this township and no stone quarries and no indications of minerals were found. The climate is good. Wild ducks are very plentiful. Section No. 1 is gently rolling prairie and suitable for farming. An Indian trail leading from Poundmaker's reserve to Calgary crosses this section and section No. 2 in a southwesterly direction. The south halves of sections Nos 2 and 3 are gently rolling prairie and suitable for farming. The remaining parts of the township, althougb fairly good soil, are too rough and broken to be farmed.—*Lennox T. Bray, D.L.S., 1903.*

Township 44.—This township is reached from the Battleford and Ribstone creek trail which crosses the northwest quarter of section 31 and traverses in an easterly and westerly direction township No. 45 in range 24, about half a mile north of the north boundary of township No. 44 in range 24; this trail is in good condition. The soil of this township is very good, being a deep rich loam underlaid by a good clay subsoil, but owing to the many small hills and sloughs it is unsuitable for farming. It, however, would be suitable for grazing and ranching purposes. The surface is very uneven and broken by hills and numerous small sloughs. The northwestern part is covered by patches of poplar and willow scrub. Poplar trees up to 8 inches in diameter can be found in different parts of sections 28, 29, 32 and 33, the quantity, however, is small. A large hay meadow and marsh covers most of the southwest quarter of section 25 and the northwest quarter of section 24. The hay is of good quality. Some hay is also found on the northwest quarter of section 7 and southwest quarter of section 18. The water throughout this township which is from sloughs is fresh. The supply is more than sufficient, but as to permanency it is hard to say. These sloughs are mostly of a peculiar character, they may have only a small surface area, but some have a depth of 10 feet. The fuel is dried poplar and can be procured from sections 20, 21, 28, 29, 32 and 33. No water-powers occur in this township, no stone quarries and no indications of minerals. Wild duck and muskrat are quite plentiful. The

climate is very good. Sections Nos. 16, 17, 18, 19, 20, 21, 28, 29, 30, 31, 32 and 33 are covered with patches of willow scrub and are rough and broken by hills and numerous sloughs. The southwest quarter of section 25 and the northwest quarter of section 24 are nearly level and covered by a good hay meadow and marsh. The remaining parts of this township are more or less open prairie, broken by hills and numerous sloughs.—*Lennox T. Bray, D.L.S., 1903.*

Township 45.—This township is reached by a wagon trail which leads from Battleford to Ribstone creek, intersecting the township on the easterly boundary of section No. 1. It traverses the township in a westerly direction, leaving it again at the southerly boundary of section 6. This trail is in good condition. The soil of the township is on the whole very good, being a rich loam underlaid in most cases by a good clay subsoil, but owing to the unevenness of the surface only a few of the sections are suitable for farming as described below. No extent of timber is found in this township. There are a few small bluffs of poplar measuring 3 to 6 inches in diameter located in the south half of section No. 31. There are also some poplar trees measuring from 3 to 9 inches in diameter located in the ravines running through sections 27 and 33 to the coulee. No hay exists except a small quantity which is situated near the eastern boundary of section 25. The water in this township, which is chiefly from sloughs, is both fresh and alkaline, the fresh water existing in the sloughs which are in the higher parts of the township and the alkaline water in the sloughs in the coulee. A small fresh water spring creek passes through sections 33 and 34, another passes through sections 24 and 25. The climate is very good. The fuel is dried poplar procured from the ravines leading to the coulee. There are no water-powers, no stone quarries and no indications of minerals. Wild ducks and muskrats are found. This township is very rough and broken by numerous hills and sloughs in its southern and eastern parts, and by a coulee and ravines leading to it from the centre to the northeastern corner. The land in this coulee, however, gradually rises towards the northern boundary and becomes very good and is suitable for farming. Section No. 1 is traversed in an easterly and westerly direction by the Battleford and Ribstone trail. This section is much broken by numerous hills from 20 to 60 feet high and numerous small sloughs with scattered patches of willow scrub, and is suitable for grazing purposes. Sections 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 are all similar to section 1. Sections 13, 14, 15 and 16 are broken by numerous hills and sloughs and a coulee with ravines leading to it. These sections have scattered patches of willow scrub and are suitable for grazing purposes. Sections 17 and 18 are rolling prairie with scattered patches of poplar and willow scrub and a few stony ridges. Portions of these sections are suitable for farming. Sections 19 and 20 are open, gently rolling prairie, with a few stony ridges and are suitable for farming. Section 21 is similar to section 19, but is broken and rough in southerly and easterly portions by a coulee and ravines. Section 22 is broken to the west by ravines running to the coulee and they contain poplar 3 to 9 inches in diameter. This section is in the flat of the coulee and portions of it are wet and marshy. Some alkali is found in the lower parts. Section 23 is also in the flat of the coulee. It is open, rolling prairie, with some portions wet and marshy; some alkali is found in the lower parts. Section 24 is broken in its southeasterly portion by hills and ravines running to the coulee. The remaining part being in flat of coulee, alkali is found in the sloughs and lower parts. A fresh water spring creek runs northerly from this section into section 25. Sections 25, 26, 35 and 36 are open rolling prairie suitable for farming. A little hay exists in section 25 near the east boundary. A fresh water spring creek flows into this section from section 24 and thence in a northeasterly direction towards Battle river. Sections 27 and 34 are open rolling prairie in their eastern halves and suitable for farming, while in their western halves they are rough and broken by ravines which contain poplar from 3 to 9 inches in diameter. A fresh water spring creek flows into section 39 from section 33 and thence

in a northeasterly direction towards Battle river. Section 28 is broken in its east half by ravines containing poplar from 3 to 9 inches in diameter. In its west half it is open rolling prairie and suitable for farming. Sections 29 and 30 are open rolling prairie containing some stony ridges in their south halves. To the north they become more rolling, with patches of willow scrub and are suitable for farming. Sections 31 and 32 are rolling prairie, with willow scrub in south halves, becoming less rolling to the north, with patches of willow and poplar scrub. These are suitable for farming. A few small bluffs of poplar occur in the south half of section 31.—*Lennox T. Bray, D.L.S., 1903.*

Township 52.—The sections on the north and west side of this township are rough, broken and hilly; the rest of the township rolling. The face of Bear hill cuts across sections 33, 34, 35, 36 and 25. The ground gradually rises from the lake and creek on the north to a height of 300 feet. The face of the hill is thickly covered with poplar from four to eight inches in diameter with heavy underbrush. About 60 per cent of the township is covered with poplar bluffs and scrub with openings of prairie. The west side of the township is more open than the east. A few clumps of spruce 6 to 12 inches in diameter grow along the creek in sections 32 and 33. The timber in the bluffs in this township is not any larger (6 to 8 or 10 inches in diameter) than in the townships on the east and north of it, but the bluffs are much larger and thicker. The largest bluffs are in sections 22, 23, 26 and 27. The bluffs will furnish immense quantities of fuel, fencing and rough building material. The soil is a rich black loam, 4 to 6 inches deep with mostly clay subsoil, classes second, third and fourth, and with the exception of the sections on the north and west sides of the township, is very good for farming purposes. The clearing of the land would not involve a great deal of labour. There are a number of sections in the interior of the township with scarcely a foot of waste land in them. A large slough in sections 9 and 10 and one in the north-east corner of section 11 will in drier seasons than this furnish a great quantity of hay. A number of small sloughs are found in the township that will furnish hay. Red Deer river flows southward through sections 31 and 30, and Little Red Deer westward through the north part of sections 33, 32 and 31. A large lake on the north side of sections 34 and 35 has been traversed. The Saskatchewan enters the township in the southwest quarter of section 18, curves southward through the west half of section 7 and out of the township, cutting the northwest corner of section 6. The water in the sloughs, lakes and creeks is fresh. The trail from Battleford to Onion lake enters the township in the southeast quarter of section 25, runs northwesterly through sections 25, 36, 35 and 34, leaving the township just west of the quarter post on the north boundary of section 34. There are no minerals or stone quarries and no timber for lumbering purposes. October was a very fine month, very little rain, bright warm days and not much frost for the season. Prairie chickens and rabbits were very plentiful, frequent tracks of bear, a few jumping deer and a couple of elk were seen along the river. —*Wm. R. Reilly, D.L.S., 1903.*

Township 53.—(East outline.)—The land on each side of the east boundary is open and rolling with numerous small sloughs and ponds. Towards the north it is more rolling and even hilly with beautiful slopes of prairie. There are a few clumps of poplar, some of which is sufficient for building and a fairly good supply of fuel. On sections 13 and 18 is a nice lake, evidently deep, with a large marsh extending to the northwest, and also another to the east of it. The soil is generally deep black loam, with light sandy subsoil, and three creeks running through this township in a southwesterly direction, supply plenty of fresh water.—*J. J. Dalton, D.T.S., 1903.*

(Subdivision.)—This township is rough, broken and hilly; the north half pretty well covered with bluffs of poplar, willow and poplar scrub, with a few spruce trees along the creek in sections 33 and 34, the south half thickly dotted with poplar bluffs and scrub covering about one-fourth of the surface, the remainder open prairie. The

bluffs will supply timber for fuel, fencing and logs 6 to 8 inches in diameter for rough buildings. The soil of the south part of the township is a light sandy loam with sand subsoil, the north part a good black loam four to six inches deep, with sand and clay subsoil. It is fair pasture land in the south and good in the north, but not suited for cultivation. Three lakes were traversed, one in sections 15 and 16, one on the east boundary sections 12 and 13, and one on the south boundary in sections 2 and 3. The stream flowing westward out of this lake is known as Little Red-deer, it passes through a slough and out of the township in the southeast quarter of section 4, re-entering the township and joining the Red-deer in the southeast quarter of section 6. Red-deer river enters the township in the northwest quarter of section 34 and flows southward through sections 34, 33, 28, 21, 20, 17, 8, 7 and 6. This is a rapid stream from 25 to 40 feet wide, 2 to 4 feet deep. By building dams it could be used several times as a water-power in the south part of the township. The valley is too wide in the north part to make use of the power, with outlay in proportion to its value. A small creek rises in a marsh in sections 24 and 25, runs westward to the lake in sections 15 and 16 and out of the west end of this lake, joining Red-deer river in the south part of section 17. A large creek 15 feet wide, 2 feet deep, with strong current, flows out of the lake on the east boundary southward through section 12 and into a large slough in section 1 and through the slough into the lake in sections 2 and 3. Several small lakes and sloughs are scattered all over the township. The water is fresh in all creeks, lakes and sloughs. Hay is not as plentiful as in the township to the east of this one; from 200 to 300 tons could be cut in most seasons, the greatest quantity in sections 13 and 14 and in 1, 2 and 3. Minerals, none. Stone quarries, none. Timber for lumbering purposes, none. The trail from Battleford to Onion lake enters the township just west of the quarter post on the south boundary of section 3, crosses the Little Red-deer at this point by a bridge, runs northwest through sections 3, 4, 9, 8, 7 and 18, crossing the Red-deer by a bridge in the northeast quarter of section 18. The mail trail from Emmaville to Onion lake enters the township, crossing the creek in the northeast quarter of section 12 and runs westward through sections 12, 11, 10 and 9, joining the Battleford and Onion lake trail on the east boundary of section 8. First part of September was wet and cold, latter part bright and fine. October bright and warm with frosty nights. Prairie chickens and rabbits are plentiful, some jumping-deer in the north of the township. One rancher is squatted on section 15.—*Wm. R. Reilly, D.L.S., 1903.*

Township 54.—(East and west outlines.)—This township is not so favourably conditioned as the township to the south. It is rolling and open to the south and in the north is rough and scrubby with bluffs of poplar. Muskegs and sloughs are numerous. The soil, black loam or leaf mould, is very shallow, not averaging more than about 2 or 3 inches. There are numerous bluffs of poplar that would answer for building purposes, though more or less stunted. There is a stream 50 links wide and 4 feet deep running south through the centre of the township.—*J. J. Dalton, D.T.S., 1903.*

Range 25.

Township 40.—The route to the township is along the Sounding lake trail as far as township 40, range 24, west third meridian, thence westerly. The latter part of the trail is little used, and indistinct. The soil is a clay loam suitable for grazing, and where not too hilly is also fair farming land. The easterly and southerly tiers of sections, also sections 26 and 35, are rolling prairie, and are fair farming land. The greater part of the remainder is too hilly, except occasional small plateaus and valleys. No part of the surface is scrubby, but there are a few large bluffs of small poplar in sections 9, 21 and 29, and some small bluffs in the other parts of the township. There are a few small hay marshes in sections 1, 2, 3, 4, 11, 12, 13 and 14. The quantity is

not great at any place, and the quality is only fair. There are ponds and sloughs all over the township, ranging in size up to small lakes. Many of the smaller ones are fresh, but the larger ones and all the lakes are alkaline. A small creek of good water starts in section 21 and runs into Chisholm lake in section 4. The water supply is sufficient and permanent. None of the lands are likely to be flooded. There are no water-powers. The general indications are that the season is somewhat late in opening. There was a heavy snowstorm on May 22 and a frost early in June. There was no other frost until the first week of September. There is a limited supply of poplar wood, which is the only fuel. There are no outcroppings of rock and no minerals in the township. Ducks, geese and prairie chickens were common all over the township. Foxes, wolves and red deer were also seen.—*Herbert J. Bowman, D.L.S., 1903.*

Township 41.—The route to this township from Battleford is along the Sounding lake trail as far as the south boundary of township 41, range 23, west third meridian, thence in a northwesterly direction across township 41, range 24. The northeasterly part of the township is sandy, hilly, and much broken by sloughs and lakes. The northwesterly part is less broken, although the soil is light. The remainder of the township has better soil, and except that for the most part it is very hilly and broken by large sloughs, would be fairly good farming and grazing land. Sections 7 and 18 and parts of 8 and 17 are fairly good farming land. In the localities of the lakes there is a good deal of scrub. There are numerous large bluffs of small poplar scattered over the whole township. This gives an abundant supply of fuel, but none of it is large enough for building purposes. In sections 4, 5, 7, 8, 9, 16, 17 and 18 there are numerous sloughs on which hay may be cut. At no place is the quantity large, and the quality is generally fair. Some of the ponds are fresh, as are also the larger lakes, except Davey lake. A good spring enters Cherry lake in section 35 from the northwest. There are no water-powers. The general indications are that the season is somewhat late in opening. There was a heavy snowstorm on May 22 and a frost early in June. There was no other frost until the first week in September. The only fuel is poplar wood, which can be conveniently obtained at any part of the township in sufficient quantities. There are no outcroppings of rock, and no minerals. On many of the hills, however, there are granite boulders in large quantities. There are large numbers of ducks, geese and prairie chickens throughout the township. Wolves and red deer were also seen. The remains of a hunter's lodge was found a short distance south of Chimney lake.—*Herbert J. Bowman, D.L.S., 1903.*

Township 42.—The route to the township from Battleford is along the Sounding lake trail, which is quite distinct, as far as township 42, range 21, whence a route due west may be taken. The greater part of the township is a succession of sand hills interspersed with ponds and small lakes. The northeasterly part is a little better soil, but it is so broken by hills and deep sloughs as to render it unsuitable for farming. However, part of section 35 is a flat valley of good land, as are also parts of sections 5 and 6. Small bluffs of scrub are found all over the township. Poplar for fuel can be got readily in any part of the township, but it rarely reaches a greater diameter than 4 inches. However, in section 1 near Clare lake, and in sections 7 and 18 along Manito lake, considerable quantities of poplar and balm of Gilead 12 to 15 inches in diameter suitable for building purposes can be had. There is hay in small quantities in sections 13 and 24, near Orion and Altair lakes. The quality is fair. Very little grows in any other part of the township. There are numerous ponds and lakes all over the township, and fully 50 per cent of these are fresh water. A creek whose flow depends much upon the weather runs through section 12 from Clare lake which is fresh, to Seagram lake in the township east. There is a spring of excellent water in section 25, and also one at the southeasterly corner of section 3. Both these are permanent. The permanent water supply is abundant. There is no water-power. The general indications are that the season is somewhat late in opening. There was a heavy snow-

storm May 22 and a frost early in June. There was no other frost until the first week in September. The only fuel is poplar and balm of Gilead, and a good supply of this can be had anywhere in the township. There are no outcroppings of rock and no minerals. Ducks, geese, prairie chickens and sandhill cranes were numreous.—A number of wolves and red deer were also seen.—*Herbert J. Bowman, D.L.S., 1903.*

Township 43.—This township is reached from the Battleford and Ribstone creek trail, which passes through township 44, range 25, about four and a quarter miles north of the north boundary of this township. The trail is in good condition. The soil is first class, in the northern central part being a deep rich loam underlaid by a good clay subsoil. The southern two tiers and western tier of sections have very poor soil, being chiefly sand and gravel. The western tier and the southern two tiers of sections and the eastern tier of quarter sections of this township are very rough and hilly; they are suitable for pasture land. The remaining part of the township is suitable for farming. The surface varies from level prairie in the central northern part to very rough and broken in the southern and western parts. The central northern part is thickly dotted with bluffs of poplar measuring to 6 inches in diameter and heavy willow scrub. The remaining part of the township is more or less covered with patches of scrub, as will be described below. Poplar timber measuring in some places 8 inches in diameter was found standing in bluffs scattered throughout the western four tiers of sections. Hay of a fair quality occurs to a small extent on sections 24 and 25, and also in the northern parts of sections 4 and 5. Fresh water is scarce throughout this township, the supply being from a few small sloughs. A fresh water creek flows southwesterly through section 31 towards Manito lake. The lakes in sections 1, 2, 4 and 5 are alkaline. The fuel is dried poplar procured from nearly any one of the western four tiers of sections. The climate is good. The game is mostly prairie chicken and wild duck. There are no water powers in this township, nc stone quarries and no indications of minerals. This township is divided by a ravine or coulee which, starting from the western boundary of section No. 19, crosses the township in a southeasterly direction leaving it again near the southeast corner. The land to the north of this coulee is very good and nearly level. To the south of it, however, the country is rough and broken by sand hills and lakes. Section 1 is rolling prairie broken to the northeast by hills and to the west and south by a coulee which contains alkali. The north and southwest quarter sections are partly covered by a lake which contains alkaline water. Sections 2 and 3 are rough and broken by hills to the south and a coulee to the north. Sections 4 and 5 are broken by sand hills and ridges, each has a large lake covering in an east and west direction nearly the width of the sections. Between these two lakes and to the north a hay meadow exists. These lakes contain alkaline water. Some poplar stands on the northwest quarter of section 5 measuring up to 8 inches in diameter. Section 6 and the south half of 7 are rough and broken by sand hills and alkaline sloughs. Thick patches of cherry and poplar scrub grow on the northern slope of these hills. The northwest half of section 7 and the northwest quarter of 8 are gently rolling prairie. The soil is sandy loam. Patches of willow and poplar scrub occur throughout these sections. Sections 8, 9 and 10 are high rolling prairie with gravel and stony ridges and are broken by a coulee crossing in a northwesterly direction. The north half of sections 10 and 11 and the northwest quarter of 12 are gently rolling prairie and suitable for farming. The south half of section 11 and the remainder of 12 are rough and hilly. Some poplar up to 6 inches in diameter occurs on the south half of section 11. The east halves of sections 13 and 24 are broken by small hills with stony ridges. The west halves of sections 12 and 24 and sections 14 and 23 are open and nearly level prairie suitable for farming. Section 15 and the north half of section 16 are gently rolling prairie with thick patches of willow scrub. Some few bluffs of poplar under 6 inches in diameter occur on section 16. The south half of sections 16 and 17 are broken by a coulee. Section

18 is gently rolling prairie with bluffs of poplar and willow scrub. It is broken to the northeast by the coulee. Sections 19 and 30 are rough and broken by a coulee and ravines. Poplar and willow scrub occur throughout. Sections Nos. 20, 21, 22, 27, 28, 29, 32, 33 and 34 are nearly level prairie and are covered by thick bluffs of willow and poplar measuring up to 6 inches in diameter. These sections are suitable for farming. Sections 25, 26, 35 and 36 are open gently rolling prairie and suitable for farming. Quite a number of sloughs occur in the eastern parts of sections 25 and 36. Section No. 31 is broken by a deep ravine containing a fresh water creek and by Manito lake. Poplar up to 10 inches in diameter was found in some of the ravines running to the lake.—*Lennox T. Bray, D.L.S., 1903.*

Township 44.—This township is reached by the Battleford and Ribstone creek trail, which traverses it in an easterly and westerly direction, and is in good condition. The soil is fair, being a rich loam underlaid in most cases by a clay subsoil. The southern and western parts of this township are suitable for farming, but the northern and eastern parts are rough and hilly, and more suitable for pasture. The surface varies from nearly level in the southern part to rough and rolling in the northeastern part. Willow scrub is found scattered in patches throughout the township, the heaviest being near the southern central part. Some few bluffs of poplar occur in sections 4, 5, 8, 9, 16 and 17; the timber, however, is small, being below 6 inches in diameter. Poplar timber also occurs in the ravines running to Manito lake, measuring in some cases up to 10 inches in diameter. A small hay meadow occurs in the northern part of section 9. Some hay is also found in sections 20, 21 and 22 in and about the sloughs. The water, which is mostly from sloughs, is fresh. A small fresh water spring creek flows out of section 5 through the southeasterly part of section 6 towards Manito lake. Apparently the east half of section 20 and the west half of section 21 become flooded to a depth of from 1 to 3 feet. There are no water-powers in this township, no stone quarries and no indications of minerals. The climate is good. The game found is mostly wild duck. The fuel is dried poplar procured from the central southern part of the township. Section 1 is rough and hilly in the east and becomes nearly level prairie in the west part. Section 12 and the east half of section 11 are rough and hilly towards the north and east, becoming gently rolling towards the south and west. Sections 2, 3, 4, 5, 8, 9, 10 and west half of 11 vary from nearly level to gently rolling prairie, and are suitable for farming. Sloughs and willow scrub occur scattered in different parts of these sections. A hay meadow occurs in the northern part of section 9. Poplar below 6 inches in diameter grows in scattered bluffs in sections 4, 6, 8 and 9. Sections 6 and 7 are gently rolling prairie, with some sloughs and willow and poplar scrub scattered throughout. To the west they become more rolling, and section 7 is broken by Manito lake and ravines running to the lake. Poplar trees are growing in some of these ravines, and along the shores of the lake, measuring in some cases up to 10 inches in diameter. A fresh water creek flows out of section 5 through the southeast half of section 6. Section 18 is broken in the southwesterly part by Manito lake and ravines running to it. The eastern and northern parts are rolling prairie and suitable for farming. Sections 15, 16 and 17 are gently rolling prairie, with some sloughs, and are suitable for farming. Bluffs of willow and poplar are scattered throughout these sections. Sections 13, 14, 22, 23, 24, 25, 26, 27, 36, 35, 34 and east halves of 32 and 28 are rough and broken by hills and sloughs. Willow scrub in patches is scattered throughout them, mostly on the northern slopes of the hills. These sections are suitable for pasturing purposes. Sections 19, 20 and 21 are gently rolling prairie, suitable for farming. A large slough covers nearly all the northwest quarter of section 20. A series of sloughs and flats occur in the northeast quarter of 20 and the northwest quarter of 21. Some hay grows on these flats. The west halves of sections 28 and 32 and sections 29, 30 and 31 are gently rolling prairie, with a great many sloughs and patches of willow and poplar scrub. A large slough is situated on the

northeast quarter of section 31. These sections are suitable for farming. The Battleford and Ribstone creek trail intersects section 36 near the northeast corner and crosses sections 36, 35, 26 and 27 in a southwesterly direction. It touches section 21 and then crosses sections 28, 29 and 30 in a westerly direction. This is a wagon trail and is in good condition.—*Lennox T. Bray, D.L.S., 1903.*

Township 45.—This township is best reached from the Battleford and Ribstone creek trail, which traverses township No. 44, range 25, at about 1¾ miles south of its north boundary. This trail is in good condition. The soil of this township is very good, being a rich loam underlaid by a good clay subsoil, but owing to the roughness of the surface and the great number of sloughs only a very few of the sections are suitable for farming purposes. The surface is very rough and broken by numerous small hills and sloughs. The northeast part, however, is less broken and changes to gentle rolling prairie as it reaches the north and east boundaries. The water which is from sloughs is chiefly alkaline, although some fresh water sloughs are found as well. The water in Flat and Tent lakes is quite alkaline. The fuel is dried poplar, which is scattered throughout the central part of the township, though not very abundantly. There is no hay in the township, no water-power, no stone quarries and no indication of minerals. The climate is very good. Wild ducks and muskrats are found, the latter are very plentiful. There is very little timber in the township, with the exception of a few bluffs of poplar measuring up to 6 inches in diameter, which are located in the northern parts of sections 20 and 21. Section No. 1 is prairie, broken by small hills and a few sloughs. Sections 2, 3, 4, 5, 6 and 7 are hilly, open prairie, with many sloughs and scattered patches of willow scrub. Sections 8, 9 and 10 are open prairie, broken by small hills and many sloughs. Sections 11 and 12 are open, hilly prairie, with a few sloughs. Section 13 is gently rolling prairie, the northwest quarter of the section being broken by Flat lake, the water of which is alkaline. Some alkali occurs on the lower parts of this section. In section 14 the east half is gently rolling prairie, the west half rough and hilly. Section 15 is hilly prairie, with many sloughs and scattered patches of willow scrub. Section 16 is open, hilly prairie, with many sloughs. Sections 17, 18 and 19 are prairie, broken by small hills and many sloughs. In section 20 the northeast quarter is nearly all covered by Tent lake. Section 21 is nearly all covered by Tent lake, the water of which is alkaline. A few bluffs of poplar trees up to 6 inches in diameter stand on a peninsula in the northern parts of this section and section No. 20. Section 22 is rolling prairie, broken by small hills and many sloughs. Sections 23, 24, 25 and 26 are gently rolling prairie, with a few patches of willow scrub and a few sloughs. These sections are suitable for farming. Section 27 is rolling prairie, with numerous sloughs and patches of poplar and willow scrub. Section 28 is prairie, broken by many sloughs and small hills, with patches of poplar and willow scrub. Sections 29, 30, 31, 32 and 33 are open, hilly prairie, with many sloughs. Section 34 is hilly prairie, with many sloughs and patches of willow scrub. The northeast quarter of this section is gently rolling prairie, with a few sloughs, and is suitable for farming. Sections 35 and 36 are nearly level prairie, with thick bluffs of poplar and willow scrub in their northern parts. These sections are suitable for farming. The northeast portion of this township is suitable for farming, the remainder might be used for grazing purposes. The sloughs in this township are numerous and the majority of them are deep, and seem permanent. Alkali occurs around the edges. No traces of the Sounding lake and Fort Pitt trail could be followed through this township, although it apparently enters this township from township No. 45 in range 26.—*Lennox T. Bray, D.L.S., 1903.*

Township 54.—(East outline.)—To the south this township is slightly rolling, with a good deal of wet land and scrub. The soil is very shallow, being only two or three inches of leaf mould or black loam on a clay subsoil. There is about three miles of solid poplar woods running from section 13 to section 36, but the north half of section

36 is steep prairie hills. This is not desirable locality for any purpose that I know of. This township may be arrived at by following along the Onion lake trail and then turning to the north.—*J. J. Dalton D.T.S., 1903.*

Range 26.

Township 40.—The route to the township from Battleford is along the Sounding lake trail as far as township 40, range 24, whence a westerly course may be taken. The latter part of this trail is indistinct and little used. The most northerly and most scutherly tiers of sections in this township are rolling prairie and suitable for grazing and in part for farming. The remainder of the township is very hilly and full of sloughs and ponds. There is no timber or scrub of any account anywhere in the township. Along the south boundary and partly in section 6 there is a large hay marsh of about 200 acres. There are also some smaller ones in sections 3, 4 and 5. The quality of the hay is good. Throughout the township large grassy ponds of fresh water are common, the greater number of which are permanent. There are also several large sloughs of alkaline water. There are no springs or running streams. The supply is sufficient and permanent. There are none of the lands likely to be flooded. There are no water-powers. The general indications are that the season is somewhat late in opening. There was a heavy snowstorm on May 22 and a frost early in June. There was no other frost until the first week in September. There is practically no fuel of any kind in the township. There are no rock exposures and no minerals. Ducks, geese and prairie chickens are common everywhere. Foxes and wolves were also seen. —*Herbert J. Bowman, D.L.S., 1903.*

Township 41.—The route to the township from Battleford is along the Sounding lake trail as far as the south boundary of township 41, range 23, and thence in a northwesterly direction. The two northerly tiers of sections are hilly, sandy and considerably broken by small lakes, and not at all suited for farming or grazing. The remainder is a heavily rolling prairie of clay loam, and except sections 9, 10, 15 and 16, which are very hilly, is good for grazing and fair for farming. The two northerly tiers are also pretty well covered with scrub and scrubby poplar. There is practically no timber of any kind within a mile of the southerly boundary. Throughout the rest, bluffs of poplar are not uncommon, and along Eyehill creek, in sections 31 and 32 a few trees have as great a diameter as 12 inches. The supply of hay is not great in this township. At Weir lake, in sections 28 and 33, there might be cut 10 or 12 acres of fair quality, and there is also some in the marshes in sections 29 and 32. There are some small fresh water ponds in nearly every part of the township, but the larger ones and all the lakes are more or less alkaline. Eyehill creek, 15 to 20 feet wide and two to three feet deep, runs through the northwest corner of the township; it is fresh. The water supply is sufficient and permanent. There is no water-power. The general indications are that the season is somewhat late in opening. There was a heavy snowstorm on May 22 and a frost early in June. There was no other frost until the first week in September. The only fuel is poplar wood, a sufficient supply of which is easily obtained anywhere except in the southerly part of the township. There are no outcroppings of rock and no signs of minerals. Prairie chicken and ducks were common all over the township. Foxes and wolves were also seen.—*Herbert J. Bowman D.L.S., 1903.*

Township 42.—The route to this township from Battleford is along the Sounding lake trail as far as township 42, range 21, west of the third meridian, thence a course due west may be taken. Manito lake may be crossed at the narrows, in the northeast quarter of section 27. The soil throughout the township is very sandy and entirely unsuited for farming or grazing. The whole township is a succession of sand hills, and for the most part covered with scrub and bushes. Eyehill creek enters the

township in section 5 and flows almost due northeast into Manito lake. In section 23 there is a considerable quantity of good building timber, being poplar and balm of Gilead, reaching a size of 12 to 15 inches in diameter. In section 7 south of Lodge lake, in sections 31 and 32, and in section 12, near Manito, there are also quantities of such timber and bluffs of poplar occur all over the township. There are no hay lands in the township. The township is well watered. An arm of Manito lake stretches from the north boundary southwesterly across the township. The water is saline and unfit for use. The shore everywhere gives evidence that the water in the lake is lowering rapidly. Eyehill creek, 15 to 20 feet wide and 2 to 3 feet deep, flows a distance of about 6 miles in the township. The banks of the creek are high, but there is a ford used by the Indians quite near where the creek crosses the north boundary of section 9. The water of the creek is fresh. Besides this there are numerous ponds and small lakes, the majority of which are fresh water. None of the land is likely to be flooded. There are no water-powers. The general indicaitons are that the season is somewhat late in opening. There was a heavy snow storm on May 22 and a frost early in June. There was no other frost until the first week in September. Poplar and balm of Gilead wood is the only fuel. It is plentiful everywhere in the township. There is no outcrop of rock and no minerals. Ducks, geese and prairie chickens were common. Foxes, wolves and red deer were also seen.—*H. J. Bowman, D.L.S., 1903.*

Township 44.—This township is partly covered by Manito lake, which takes in sections Nos. 1-14 and parts of sections 15, 16, 17, 18, 22, 23 and 24, and is reached by the Battleford and Ribstone creek trail which traverses it in an easterly and westerly direction. This is a wagon trail and in a good condition. The soil of this township is on the whole very good, being a rich loam underlaid in most cases by a good clay subsoil, and is suitable for farming. The timber of this township is mostly poplar. Trees of from three to ten inches in diameter were found adjoining Manito lake in section No. 16. Poplar from three to six inches in diameter are found in bluffs scattered throughout the township, and the ravines running to Manito lake all contain poplar of this size. The surface is nearly level and is thickly dotted with bluffs of willow and poplar scrub and is suitable for farming purposes. The quarter sections adjoining Manito lake are very rough and broken by ravines running to the lake and are mostly covered with a thick growth of willows and young poplar in numerous bluffs. These quarter sections are suitable for ranching purposes. The fuel is dried poplar and can be secured from nearly every section. There are no water-powers, no hay, no stone quarries and no indications of minerals. The climate is very good. Wild ducks and geese are found about Manito lake. The water is fresh but is very scarce in the two northern tiers of sections, except in occasional sloughs. In some of the sections adjoining the lake fresh water springs occur. Sections Nos. 25-36 and sections 20 and 21 are nearly level prairie with numerous bluffs of willow scrub and young poplar scattered throughout. Some of these poplar will measure from three to six inches in diameter. These sections are suitable for farming. The Battleford and Ribstone creek trail passes through sections 25, 26, 27, 28, 29, 20 and 19. The northern halves of sections 19, 20, 21, 22, 23 and 24 are rolling prairie and are suitable for farming. The southern halves of these sections, together with parts of sections 18, 17, 16, 8, 9 and 15, which are not covered by Manito lake, are very rough and broken by ravines running to the lake. These are covered with thick bluffs of willow scrub and poplar. In some of the ravines, poplar grows from three to ten inches in diameter, these are suitable for building purposes. A fresh water spring creek flows out of the northwest quarter of section 24 through the southwest quarter of section 24 and the southeast quarter of section 23 to Manito lake. Another fresh water spring creek flows out of section 22 through the southwest half of section 23 into Manito lake. Two fresh water spring creeks flow out of the southwest quarter of section 19 to Manito lake.

Manito lake contains beautiful clear water but is very alkaline. The shore in some places is covered with stones and other places by a beautiful sand beach. The banks are mostly high and steep and in some places wooded with poplar.—*Lennox T. Bray, D.L.S., 1903.*

Township 45.—This township is reached by a trail called by the Indians the Sounding lake and Fort Pitt trail. This trail leaves the Battleford and Ribstone creek trail in section 25, township 44, range 26, and crosses through the southeasterly portion of township 45, in range 26, in a northeasterly direction. This is a wagon trail, and although apparently old is in fair condition. The soil of this township is very good, being a deep rich loam underlaid by a good clay subsoil, and is suitable for farming. The surface is gently rolling, with the exception of the eastern tier of sections, which are more or less prairie broken by many hills and sloughs. Willow scrub is scattered throughout the township, the thickest being near the north and west boundaries. There is no timber in this township except a few old trees which stand on the northern part of section 3. The fuel is dried poplar procured from the northern part of township 44, range 26. Very little clay is found in this township, with the exception of a little on section 9, which is of poor quality. There are no water-powers in this township, no stone quarries and no indications of minerals. The climate is very good. Wild ducks and muskrats are common. The water of the township is fresh, and lies mostly in sloughs. A small fresh water spring creek flows from section 16 southwesterly through sections 17, 8, 5 and 6, and is joined by another small fresh water spring creek flowing from section 18. Another fresh water creek, though not apparently flowing, passes through sections 20, 29, 30, 32 and 33. Section 1 is nearly level prairie, but contains a great number of sloughs and thick bluffs of willow scrub in the southern part. Section 2 is nearly level prairie in the southern part and is gently rolling to the north. It is traversed in a northerly and southerly direction by the Sounding lake and Fort Pitt trail. Section 3 is gently rolling prairie. There are a few small bluffs of poplar measuring from 3 to 6 inches in diameter standing on the southern part of this section. Sections 4 and 5 are gently rolling prairie. A fresh water spring creek flows southwesterly over the northwesterly part of section 5. Sections 6 and 7 are nearly level prairie, with patches of willow scrub. On section 6 there are a few sloughs and a fresh water spring creek flows southwesterly across it. Section 8 is nearly level prairie, with some willow scrub. Two creeks which appear to meet in this section flow southwesterly through it. Section 9 contains a large slough covering the north and southeastern parts. Some hay of a poor quality is found on this section. Sections 10 and 11 are gently rolling prairie. The Sounding lake and Fort Pitt trail traverses in a northeasterly direction the eastern part of section 11. Sections 12 and 13 are prairie, broken by many sloughs. The Sounding lake and Fort Pitt trail crosses the northwest part of section 12, and runs northeasterly through section 13. Sections 14 and 15 are rolling prairie. Sections 16 and 17 are nearly level prairie. A fresh water spring creek flows out of section 16 through section 17 in a southwesterly direction. Section 18 is nearly level prairie, and a fresh water spring creek flows out of this section in a southeasterly direction. Thick bluffs of willow scrub occur on this section. Sections 19, 20, 21, 22, 23, 26, 27, 28, 29 and 30 are gently rolling prairie. Some thick willow scrub occurs in the western parts of sections 19 and 30. A creek, though with no apparent flow, leads from section 20 into section 29, thence into section 30, returning again to section 29, thence in a northeasterly direction through sections 32 and 33. Sections 24, 25, 36 and 35 are rolling prairie, broken by many sloughs. Sections 31, 32, 33, 34 and 35 are rolling prairie, and become scrubby towards their northern parts. —*Lennox T. Bray, D.L.S., 1903.*

Range 27.

Township 44.—There are two routes for reaching the township from Battleford. One by an air line across the prairie, which I was strongly advised not to take owing

to the absence of fuel and grass, the latter having been burnt by prairie fires. The other route from Battleford was via Poundmaker Indian reserve. The trail itself is fairly good, but Devils Drum creek close to Sweet Grass Indian reserve fairly deserves its name. Cutknife creek is also a bad one in the spring. Both these creeks could be easily bridged at a small cost. The soil is generally good, and fit for cultivation or ranching. About one-half of the township is first class, three-eights is second class and one-eight is third class. The surface is very rough, and covered with patches of poplar, willow and windfall (mostly from 10 to 12 years' growth). There is about one-seventh of the whole township covered with these scattered patches. There is a small quantity of poplar of somwehat larger size up to 10 and 12 inches in sections 1, 2, 3 and 4, and near Manito lake in sections 14 and 22. Generally speaking, poplar up to 6 inches in diameter can be obtained anywhere within the township by going about half a mile for it. Settlers would, I should judge, experience no difficulty in getting wood for fuel and fences for the first year or two; after that the supply is likely to be exhausted. There are no hay marshes, but the grass is generally good for grazing purposes. Manito and Duck lakes are decidedly salt, but the horses liked it. These lakes are permanent bodies of water. A sufficient supply of water, and possibly fresh, I should judge, can be obtained by digging at a depth of 20 to 30 feet. There are no streams, no chance of flooding, and no water-power. It was very cold in May; in October cold and windy, with some snow, and blizzards of a mild type were not uncommon. Fuel and wood are obtainable all over. No rock in place or mineral was observed. Geese, ducks, prairie chicken, plover, snipe and sandhill cranes were found. —*Henry de Q. Sewell, D.L.S., 1903.*

Range 28.

Township 35.—I found this township rather broken and hilly, mostly high rolling prairie, classed from second to third, with a sandy loam soil and clay subsoil. The hilly parts are covered with short but rich grasses, but small stones or boulders are scattered over the surface. It is better adapted to grazing than cultivation. A few fresh water sloughs are found, but all permanent ponds or small lakes are strongly alkaline. I found only one lake large enough to traverse. It extends across sections 10 and 11. There are no running streams, no wood of any kind, no hay of any account, no quarries and no minerals in sight. The climate seems favourable to agriculture as no summer frosts prevailed, but I presume the greatest drawback would be from dry seasons and the lack of facilities for irrigation. If irrigation were possible, the country would be very productive. No trails were crossed. Water fowl are plentiful in all ponds and lakes and prairie chicken abound. A few antelope and red foxes were seen, and in the sloughs and ponds muskrats are plentiful.—*G. C. Rainboth, D.L.S., 1903.*

Township 36.—I found this township fairly well adapted to cultivation, the soil being composed of sandy loam with a clay subsoil, classed second to third. Dividing the township diagonally from the southwest towards the northeast, the northwestern two-thirds is high rolling and hilly prairie and the southeastern one-third undulating, covered with rich grasses. Cactus lake, bitterly alkaline, crosses sections 35 and 36. Fresh water is scarce, a small lake and hay marsh in sections 4 and 10 contained the only good water found fit for use. A very fine hay meadow or marsh was found crossing sections 23, 24, 25 and 26. The northeast corner of section 23 is near the middle of the marsh with slight drainage towards the southeast. Four or five hundred tons of good hay could be cut. No streams of running water were found. There is no timber, no quarries or minerals in sight. The climate seems favourable for agriculture as no frosts occurred before September 1, and during the month of October, when I was engaged subdividing this township, we had very fine weather. The nearest fuel

which is in the shape of small poplar, is found in the north central part of township 36, range 1 w. 4th mer., but is hardly worth mentioning. Feathered game such as wild ducks and prairie chickens are plentiful, but large game is seldom seen. No trails were found.—*G. C. Rainboth, D.L.S., 1903.*

Township 37.—This townshp is all open undulating and rolling prairie and although covered with rich grasses and a capital grazing country, is not very well adapted to cultivation being classed No. three. The soil is a sandy loam with hard boulder clay or sandy subsoil. A considerable quantity of alkaline flats surround the lakes of which two are of considerable extent, 'Cosine lake,' so called because of an incident which occurred during the calculation of the intersections,) lies in sections 8, 9, 16, 17, 20 and 21, and its water is bitterly alkaline; Cactus lake enters the township from the southeast corner crossing sections 1, 2 and 3 and is also strongly alkaline. Two large hay marshes, one in sections 29 and 30 and the other in sections 33 and 34, contain good water, but the hay in them is too coarse for good feed. No wood or scrub of any kind exists. An old hunter's trail leading from Sounding lake to Battleford crosses this township, but is too faintly marked to follow excepting where it passes along the edge of a marsh or other soft spot. Water fowl are plentiful and prairie chicken are found. A few antelope are sometimes seen and muskrats in all the ponds and marshes. There are no creeks or water-powers. No quarries or minerals were noticed.—*G. C. Rainboth, D.L.S., 1903.*

Township 38.—I found this township fairly well adapted for cultivation, being classed from second to third, in portions rather light but on the whole a fairly good township, the soil being a sandy loam with clay subsoil. Eyehill creek runs northeasterly through this townsip from sections 6 to 34, contains fairly good water, but slightly alkaline running with a current of about half to quarter of a mile per hour, with a depth of about one foot. No water-power exists in the township. It is open, undulating and rolling prairie covered with rich grasses. A small lake in section 33 extending into township 39, contains good water, and has a fringe of bush and scrub on the south side where camp fuel could be obtained. In sections 33 and 34, is another small lake but strongly alkaline. There is very little surface water. No quarries or minerals were noticed. Very little hay was seen, and no old trails were noted. The township may be reached across country from Battleford. Prairie chicken and water fowl are plentiful, while a few antelope are occasionally seen. Muskrats are very numerous along the creek and around the lakes. The climate is fairly good.—*G. C. Rainboth, D.L.S., 1903.*

Township 39.—This is a fractional township and is fairly well adapted to cultivation, being classed mostly No. two, the soil being composed of sandy loam with a clay subsoil, and is all open and undulating prairie covered with rich grasses. Eyehill creek runs norteasterly through sections 2 and 1, and has a current of about one-half mile per hour and an average depth of about one foot, containing fairly good water. No water falls or power sites. A small lake in sections 3 and 4 contains good water and is bordered with a small quantity of poplar and willow bush, where a limited quantity of camp fuel can be obtained. A few sloughs, in wet seasons, contain good surface water. Water fowl and prairie chickens are numerous, but large game scarce, except an occasional antelope. No quarries or minerals were observed. No leading trails were seen, but it is easy travelling across country north and west to Battle river and Battleford. Climate seems favourable for agriculture. No summer frosts were experienced. On the whole, it is a favourable township for settlement.—*G. C. Rainboth, D.L.S., 1903.*

Township 40.—This township is undulating and rolling prairie and is the fractional range adjoining the fourth meridian. It may be classed No. two, the soil being a rich sandy loam with clay subsoil, well adapted to cultivation and supporting a rich growth of grass. Fresh water is very scarce, being found in only two or three places in partly dried up marshes. Three lakes which were traversed contain alkaline water.

There are no streams, no wood of any kind and no quarries or minerals. There are no trails but the township is easily accessible from Battleford. The usual water fowl and prairie cickens are found, but no large game was seen. The climate is favourable for agriculture, there being no summer frosts.—*G. C. Rainboth, D.L.S., 1903.*

Township 41.—The south half of this township is open, undulating and rolling prairie, fairly well adapted to cultivation, the soil being a sandy loam with clay subsoil, and furnishes good grazing. The north half is unfit for settlement, being classed Nos. three and four, and is composed of sand hills, very much broken, and covered with small scrub and clumps of poplar varying from 1 to 6 inches in diameter. Good water is found in ponds and sloughs. Five lakes were large enough to be traversed, one of which, Dillberry lake, contains excellent water, the others being more or less alkaline. The poplar while being fit for fuel and fencing, is too scrubby and small for building purposes. A few hay marshes are found in the eastern part of the township. No quarries or minerals were seen. No creeks of running water nor trails were found. The township is quite accessible from any direction. The usual varieties of grouse and wild fowl are very plentiful in the lakes and ponds; muskrats are very numerous and traces of red deer were met with.—*G. C. Rainboth, D.L.S., 1903.*

Township 42.—This township alternates between sand hills covered with small scrub, and poplar bluffs with small openings. It is high rolling prairie towards the west with a few bluffs of small poplar. It is nearly all 4th class, the soil being almost pure sand and unfit for cultivation. Numerous lakes and ponds are met with containing good fresh water. The north boundary of the township crosses a large salt lake. The poplar is small, averaging about 2 to 4 inches in diameter, except a few bluffs near the centre of the township, where it is found larger averaging about 6 inches in diameter and would be useful for fencing and fuel. While this township is unfit for cultivation it is nevertheless valuable for firewood and would increase in value very much if the country were more protected from fires until the timber could grow larger. Water fowl, prairie chickens and partridges are plentiful. No minerals or quarries were seen and as to summer frosts I cannot say, as it was late in the fall when I made the survey of this township. No leading trails were seen, but old Indian camping grounds were frequently met with, indicating that this has been a favourite hunting ground in former years. The black-tailed deer, foxes and prairie wolves constitute the principal animals found in this section of the country.—*G. C. Rainboth, D.L.S., 1903.*

Township 44.—The trail mentioned in my report upon township 44, range 27, continues across the township. The soil is fair and best adapted for ranching, about one-half being class one and one-half class two. The surface is very rough and covered with patches of poplar, willow and windfall, about one-seventh of the whole township is covered with scattered patches of woods. There is no timber of large size, although some scattered poplar can be found up to 6 inches in diameter. Settlers would have enough for fuel and fences for the first two or three years. No hay marshes were seen but the grass is generally good for grazing purposes. Sherlock and Strike lakes are both salt. A sufficient supply of fresh water could be got by digging, as there are numerous springs. The climate is moderate and at the time the survey was made (September) there were heavy frosts at night. No stone quarries or minerals were noticed. Game: Geese, ducks, prairie chicken, plover, snipe and turkeys. There is no water-power and none of the land is liable to flood.—*Henry De Q. Sewell, D.L.S., 1903.*

Townships 49 and 50.—This locality, the centre of which is the townsite of Lloydminster, is reached either from Edmonton or Battleford by trail. The trail from Battleford is very much travelled by the English colonists at present. The soil is generally a deep rich black loam averaging a foot or more in depth and is especially suitable for the growth of all kinds of cereals. The general surface is rolling prairie with a great many patches of scrub and dry poplar which will not last very long for the present settlement, and there is no green timber to replace it. Hay is scattered over

the several sections in small quantities. Water is found only in the sloughs and is always fresh. Wells have been dug 40 and even 50 feet without advantage to the settlers. These wells showed a very hard and almost impenetrable clay throughout their whole depth. The season of 1903 was not a fair criterion of the climate of this district, for crops failed to the north at Onion lake and other places where they were a success other seasons. There are no minerals, coal or stone quarries. A few prairie chickens and wild ducks were the only game seen.—*J. J. Dalton, D.T.S., 1903.*

TOWNSHIPS WEST OF THE FOURTH MERIDIAN.

Range 1.

Township 37.—I found this township rather poor for cultivation, the soil varying from class second to class fourth, class third predominating. The soil while being mostly a fair sandy loam has nevertheless a very hard boulder clay subsoil which in some places, constitutes the surface as well and is mixed with small boulders and gravel. Low sand ridges occur along the south boundary in sections 3, 4 and 5. The country is undulating and slightly rolling prairie. Grasses are rich and abundant, particularly along Eyehill creek which runs diagonally through this township from section 6 to section 36. A considerable valley is formed by the creek through the central and southern part where a large quantity of hay, probably about 200 tons can be cut. The creek has an average current of about half a mile an hour, an average width of about 25 feet with a depth of from 1 to 2 feet. Its water is good but slightly alkaline. Very little surface water exists. No quarries or minerals were seen. A few small poplar bluffs extend along the base line and will furnish a few cords of fuel. Wild fowl and prairie chicken are plentiful and a few antelope are occasionally seen. An old hunter's trail from Battleford to Sounding lake passes through the township but is almost obliterated.—*G. C. Rainboth, D.L.S., 1903.*

Township 38.—I found this township to be very well adapted to cultivation, the soil being composed of a rich sandy loam with clay subsoil classed from first to second. The surface is undulating to rolling prairie covered with rich grasses. There is no timber. A large hay marsh extends across about the middle of section 27, from which in a dry season could be cut from 30 to 40 tons of fair quality of hay. A few other small hay marshes are found. Surface water is all that exists; no permanent lakes are found. Fresh water is found in nearly all the sloughs; there are no streams. Climate is favourable; no summer frosts were noticed. Fuel in scattered bluffs is to be found 12 miles to the north affording a limited quantity of poplar wood, for fuel only. There are no quarries or minerals in sight. Game such as wild fowl is found in abundance, but no large game. The route for reaching this township is from Battleford across country. An old trail, very hard to follow, known as the Sounding lake trail, passes about seven miles east of the township.—*G. C. Rainboth, D.L.S., 1903.*

Township 39.—I found this township well adapted to cultivation, the soil being composed of a good sandy loam with clay subsoil, classed from second to third. Surface is undulating prairie covered with rich grasses, a fine grazing country. Good water is found in numerous sloughs. All the large lakes of which four were large enough to traverse, contain water strongly alkaline, except one which extends across sections 11, 12, 13 and 14, and contains beautiful clear fresh water, which on account of its clear blus colour, I called 'St. Lawrence lake.' No running streams were found. A small clump of willow and small poplar averaging two inches in diameter was found on the southwest shore of St. Lawrence lake, otherwise no wood or fuel, no quarries or minerals were seen. Wild ducks and prairie chickens are plentiful, but no large game was seen. Climate is favourable for agriculture. There are no large hay meadows, nevertheless hay can be cut around the sloughs but only in limited quan-

tities. The route for reaching this township is from Battleford across the prairie, but there are no travelled trails.—*G. C. Rainboth, D.L.S., 1903.*

Township 40.—I found this township well adapted for cultivation, the soil being composed of a rich sandy loam with a rich clay subsoil classed from first to second. The surface is undulating, except in sections 34 and 35, which are rolling and hilly. The whole township is open prairie covered with a luxuriant growth of grass, being a magnificent grazing country as it has numerous fresh water ponds and sloughs with a few hay meadows. There are no large lakes, no wood, no quarries or minerals and no running streams. Wild fowls and prairie chicken are found in abundance and a few antelope were noticed. The route to Battleford lies across country, no trails being visible.—*G. C. Rainboth, D.L.S., 1903.*

Township 41.—This township is well adapted to cultivation and stock raising. It is high rolling and hilly, the southern half being open prairie and the northern half dotted with poplar bluffs, the poplar averaging from 2 to 3 inches in diameter. The land is classed from second to third, and consists of a sandy loam with clay subsoil, except in sections 35 and 36, where it is more sandy, merging into sand hills. A large lake extends along the northern boundary of the township from sections 31 to 34, and is called Killarney lake on the township sketch. Its water is alkaline. Another good sized lake, also strongly alkaline, extends across sections 34 and 35 and southerly into sections 26 and 27. A fair sized creek with good water runs into Killarney lake from the southwest from which lake no outlet was found. Good water is also found in several sloughs and springs in the hilly parts of the township. There were no large hay meadows, quarries or minerals in sight and no trails were noted. Water fowl and prairie chicken are very plentiful. Black-tailed deer are found among the bluffs, and muskrats are numerous about all the ponds and lakes.—*G. C. Rainboth, D.L.S., 1903.*

Township 42.—This township is hilly and rolling prairie, dotted with bluffs of small poplar and with small ponds and lakes interspersed. The soil is chiefly a sandy loam with clay subsoil, classed from second to third, well adapted to cultivation, but rather hilly for farming purposes, but it is an ideal township for grazing. Although no extensive hay marshes were found considerable hay could be made around the margins of the numerous ponds and marshes. No leading trails, rock exposures or water courses were seen. The poplars in the bluffs were small, averaging about 3 inches in diameter; None large enough for building purposes were noticed. Water in the marshes is generally good but in the lakes it is alkaline. The south boundary of the township crosses Killarney lake from sections 3 to 6. The northeast corner of the township is in another large lake. Water fowl and prairie chickens are abundant, and traces of black-tailed deer were in evidence. Foxes, prairie wolves and muskrats constitute the fur-bearing animals. As it was well advanced in the fall when this township was surveyed, I cannot say as to whether there were any summer frosts. Communication with this township is easy from Battleford, as it is fairly good travelling with wagons across the prairie. —*G. C. Rainboth, D.L.S., 1903.*

Township 43.—We reached this township from Saskatoon and Battleford. The present mode of travel is by wagon road, which is very good during summer months, except where the frost is going out, the distance being about ninety miles. From Battleford take the trail westerly along the southerly side of Battle river. This is a very good road during the summer months, in fact all the season excepting while the streams are overflowing their banks during the melting of the snow in spring. There are no bridges crossing these streams, and it would be dangerous crossing while they are in flood. The surface of the township is prairie; hilly, with groves of poplar amongst the hills. The prairie is pretty clear of scrub. In the southern part of the township there are a great many ponds and lakes, some of which are a considerable size. There is not very much timber, but there is a little in sections 22, 23, 24, 25, 26 and 27. In some of the groves the trees are from 6 to 10 inches in diameter, and

occasionally are 1 foot in diameter, but the trees are generally short and stunted, being in sandy soil. There are no large hay meadows in the township, but considerable could be cut from the numeorus sloughs. The water throughout the township is alkaline. A few of the sloughs contain some that is fairly good. There are no streams in the township, and consequently no water-power. The climate is similar to Manitoba; perhaps not quite so much rainfall. This season being wet and cold all through the territories, it is difficult to judge as to climate. This season there was considerable frost during August and September, destroying a great many of the vegetables, but I would not consider this usual. No fuel is found except the poplar timber in the groves scattered through the township. No coal was seen or any sign of it. No stone quarries were observed in the township, but there is some field stone along the hill-tops. Chickens, ducks, geese, partridge, &c., were quite plentiful, but no large game was seen. The soil is part clay loam and part sandy loam, the northeasterly and southwesterly portions being sandy loam and the balance clay loam, about one-third being sandy loam and two-thirds clay loam. The township is rather hilly for agricultural purposes, but a number of good quarter-sections could be selected for farming purposes.—*Lewis Bolton, D.L.S., 1903.*

Township 44.—The trail mentioned in reports on townships 44, ranges 27 and 28, west of 3rd meridian, continues across this township. The soil is generally first-class, except in the sand dunes and vicinity which comprises more than half, or more correctly, as 8 is to 9. This land, in the sand dunes, is absolutely a desert, a small portion on the confines, classes second and third, is good land as far as it goes, but owing to a large portion being sand, it is classed low. The township is equally fit for cultivation or ranching. The country is very rough and covered with patches of poplar and willow, largely of twelve years' growth or thereabouts; about one-seventh of the township is covered with these patches. In some of these scattered patches the poplar runs up to six inches. Settlers will have all the wood they require for one year, but after that there will be little left. There are no hay marshes of any great extent; the hay is, however, excellent and the grass good for grazing purposes. The township is fairly well watered, some of the lakes being fresh and the rest more or less alkaline, but good water could be had by digging 20 or 30 feet almost anywhere. Fuel is obtainable all over. Good sandstone can be obtained at Ribstone creek, and I am confident from the geological features of the country that coal exists all over the township, probably within 300 or 400 feet of the surface. Game consists of geese, ducks, prairie chicken, plover and snipe. Ribstone creek is from two to five feet in depth, gets swollen in spring, but cannot flood the country. There is no water-power.—*Henry de Q. Sewell, D.L.S., 1903.*

Township 45.—We reached this township by Canadian Pacific railway from Regina to Prince Albert, from there by horse conveyance to Battleford, thence westerly along the old Edmonton trail to township 47, range 1, west of the fourth meridian, thence southerly across the prairie to the township corner, there being no established road or trail. The soil is somewhat varied, running from sandy loam to clay loam; the soil throughout is fairly good for agricultural purposes, being chiefly clay subsoil. The surface is prairie, that portion north of the valley of Battle river is gently rolling. The banks on either side of the valley are very high, averaging between 200 and 300 feet above level of river flats; that portion south of the valley is very rolling, and in some places hilly. The timber is nearly all poplar. Outside the valley of Battle river the timber is small, not many trees over six inches in diameter. Along the river bank there are several groves of balm of Gilead, many of them large enough for building purposes. Through the northwesterly portion of the township there are a number of bluffs of considerable size, but the timber is small. There is no hay land in the township of any account only in the valley of Battle river, in a few places where there appear to be springs coming out of the banks of the valley, especially on the north side

of the river. The township is well watered. Battle river enters the westerly boundary of the township in section 19 and flows through sections 18, 17, 8, 9, 10, 11, 12, and touches sections 1, 2 and 3. The water in the sloughs throughout the township is fairly good. There is no water-power in the township; the fall of Battle river is not sufficient, and the valley too wide to construct a dam. There is no fuel excepting in the poplar bluffs through the township, the trees being quite small. Along Battle river there is considerable large willow that would make good fuel. We saw no stone in the township other than field stone. No minerals were found, nor any mineral-bearing rocks. Ducks, geese, chickens, partridge and sandhill crane were quite numerous, especially along Battle river. A few deer, foxes and prairie wolves and one bear were seen in the township. The season being a very cold and wet one throughout the whole country makes it extremely hard to judge as to climate. I would consider that it compares very favourably with Manitoba. Several heavy frosts occurred in August and September, doing serious damage to vegetables, but I do not think this occurs every year.—*Lewis Bolton, D.L.S., 1903.*

Township 46.—This township was reached from Saskatoon by wagon to Battleford, thence westerly on the old Edmonton trail to township 44, range 1, west of the fourth meridian, thence south into this township. The soil is a clay loam averaging from 4 to 6 inches in depth, with clay subsoil, and makes fair land for agricultural purposes. The surface is prairie; the northerly part rather hilly, as also the southeasterly portion. Considerable stone is scattered over the township (not large) they are chiefly on hilltops. The southwesterly portion of the township is gently rolling, with a number of small willow sloughs. Poplar is the only kind of timber and is found in small bluffs scattered over the township. Little or none of it is large enough for building purposes as scarcely any of it is over 6 inches in diameter. There is not much hay land in the township; some is to be found in sections 29 and 30, this being the only hay meadow of any extent in the township. There are a few small sloughs in the south part of the township, with hay in them, but only in small quantities. The water in the sloughs is fairly good. Blackfoot coulee, the water of which is fairly good, cuts into the township in sections 36, 13, 12 and 1. This is the only stream in the township. There is no water-power in the township. Blackfoot coulee has not sufficient water in it, for in a dry season it would be dry most of the summer. There is not much fuel, the timber is very small and in small bluffs scattered over the township. No stone quarries were seen, and no minerals were found nor any mineral-bearing rocks. Ducks, geese, chickens and partridge were quite numerous. A few deer, foxes and prairie wolves were seen. The season being an extremely wet and cold one all over the Territories and Manitoba, it would be difficult to judge as to the average weather. I would consider it to be quite as mild as Manitoba.—*Lewis Bolton, D.L.S., 1903.*

Township 47.—We went by Saskatoon via Prince Albert branch of the Canadian Pacific Railway, at which point my party had to wait 6 days for delayed baggage, from this point by wagons and horses by road to Battleford, where we obtained supplies, and thence by same conveyance westerly along the Edmonton trail to the northeast angle of township 47, range 1, west of the fourth meridian, where we commenced work on May 8. The soil is a clay loam averaging from 4 to 10 inches in depth, with clay subsoil, and is good land for agricultural purposes. The southerly and westerly portions are somewhat hilly, the hilltops being partially covered with rolling stones, not large; the balance of the township is gently rolling prairie. Small bluffs of small poplar occur in sections 3, 4, 5, 8, 9, 10, 15, 16 and 17, these being the hilly portion of the township. Poplar is the only kind of timber and is found in small bluffs chiefly on the north side of the hills and around the sloughs, very little of which is over 6 inches in diameter. Not much hay land is found in the township, only in the small sloughs scattered through the township. The water in the sloughs is fairly good, not much being alkaline. This season being showery and very wet the sloughs were full during

the whole summer. In Blackfoot coulee there was a stream flowing all season, the water was very dark in colour. This stream enters the township in section 34 and flows southeasterly through sections 27, 22, 23, 14, 13, 12 and 1; that portion through sections 34 and 27 is sluggish, the rest is more rapid. In a dry season water would likely be scarce, there being no springs so far as we observed. There is no water-power. The only fuel found in the township was in the small bluffs of poplar timber situate in the sections above named. We did not see any signs of coal or lignite veins. We did not see any minerals and would not suppose there were any in the township. Prairie chickens and ducks are quite plentiful, and there are a few partridge, very few deer and not many wolves or foxes. This season being an off season it would be hardly fair to judge the climate of this district by the past summer, but on our arrival there in the early part of May, we found the remains of last winter's snow to the depth of 3 to 4 feet in some of the bluffs of timber, and were unable to get pit holes deep enough in some cases, for frost, during the first two weeks of our work; during the balance of the month of May it was very cold and backward. For one week, about the 20th it snowed more or less, portions of which time were very stormy. The months of June, July, August and September were very wet and cold, the sky being clouded the greater part of the time, so much so that we were unable to observe for azimuth. A very sharp frost occurred about the last of August, which cut down the potatoes and vegetables. The first snow fell on the evening of September 21, and remained the next day, disappearing on the second day. September was very wet and cold throughout. The last two weeks of October and the first two weeks of November were very pleasant, being clear and bright.—*Lewis Bolton, D.L.S., 1903.*

Township 48.—We went through Regina to Saskatoon per Prince Albert branch of Canadian Pacific railway, from there by wagon road to Battleford, about ninety miles, a very good road considering the distance to construct it, and the nature of the country through which it passes. From Battleford we went westerly along the Edmonton trail, which is a very fair road during the summer months, but early in the spring it is very soft in many places while the frost is going out. This trail passes through the northerly portion of the township. The township is rolling prairie, generally, some parts inclined to be hilly, but not to any great extent, mostly clean prairie, not much scrub, but a very little timber in small groves in sections 1, 12, 27 and 28, mostly 2 to 4 inches in diameter. Not much hay is found in the township, but along Blackfoot coulee and in the sloughs near by a limited supply could be had. There are no streams of water in the township excepting Blackfoot coulee, the water of which is not very good. The upper part of the coulee having very little fall, the water is stagnant and very strongly impregnated with vegetable matter. There are very few deep sloughs throughout the township and in an ordinary season water would be scarce. There is no water power in the township. This season having been wet and cold makes it difficult to judge as to the general climate, but I would think it to be quite as mild as Manitoba, perhaps quite as subject to summer frosts. There were quite heavy frosts in August and September, destroying the vegetables, but I would not suppose that this would occur in an average season. There is no fuel in the township excepting the poplar timber in the small groves and they are only a few. No sign of coal was seen in the township. No stone quarries were observed and very little stone of any kind was seen. Chickens and ducks were about the only game seen in the township. A few foxes, but no deer were seen in that vicinity. The soil throughout the township is clay loam averaging 4 to 6 inches with clay subsoil and will be good for agricultural purposes; some excellent quarter sections are to be found along the banks of Blackfoot coulee.—*Lewis Bolton, D.L.S., 1903.*

Range 2.

Township 37.—I found this township as classified for cultivation to be from class 2 to 3, but class 3 predominates. The soil while being mostly fair sandy loam, has

nevertheless a hard boulder clay subsoil which in some places constitutes the surface as well. The country is undulating to rolling and hilly prairie covered with rich grasses and is an ideal grazing country. Eyehill creek runs easterly across the township from section 6 to section 12, forming a considerable valley, but without abrupt edges, and it has a current of about one half mile per hour while varying in width from 30 to 50 feet with an average depth of about 1 foot. Its water is fairly good for use, but is slightly alkaline. Only two lakes were found large enough to traverse and a few fresh water sloughs are found. The water in the lakes is strongly alkaline and unfit for use. There is no wood in the township, but a few small bluffs of small poplar are found in section 36, township 36, range 2, but would furnish little fuel. As for fuel for future use in this country coal will have to be used and unless found in the immediate vicinity will have to be transported by rail from the coal beds of the Red Deer and Saskatchewan rivers where it is known to exist. No quarries or minerals were seen. An old trail shown on the general map was seen in section 36, but it is very faintly visible now, and would be hard to follow. There are no regular routes to any place. Hay flats occur along the valley of Eyehill creek, where a few hundred tons of hay can be cut. Game consists of wild ducks along the creek and in the lakes and sloughs; prairie chicken are plentiful but antelope have almost disappeared from the country. Muskrats are about the only fur-bearing animals found in the ponds and along the creek. The climate is favourable for agriculture, there being no summer frosts before September 1.—*G. C. Rainboth, D.L.S., 1903.*

Township 38.—I found this township fairly well adapted to cultivation, the soil being composed of a sandy loam, with clay subsoil, classed from 2 to 3. The surface is undulating to rolling prairie covered with rich grasses, but having no timber. A few hay marshes are scattered over the township, but none of any extent. Water is found in a few small ponds, mostly alkaline, except in a few grassy sloughs, where fresh water is found fit for use. In dry seasons these latter would probably be dry, but this season having been wet, fresh water was plentiful. No streams exist. No quarries or minerals were seen. A small quantity of poplar wood for fuel is found at the southeast end of a lake in section 11, township 39, range 2, and is the nearest available. Wild fowl such as ducks and prairie chickens are plentiful, but there is no large game except a wandering antelope or so. The route for reaching this township is across country from Battleford. An old trail going towards Edmonton is marked on the general map, but can only be distinguished in spots passing in the south end of the township.—*G. C. Rainboth, D.L.S., 1903.*

Township 39.—I found this township fairly well adapted to cultivation, the soil being composed of sandy loam, with clay subsoil, classed from 2 to 3. The surface is undulating to rolling prairie, covered with rich grasses. No timber. A few hay marshes are scattered over the township, but none of much extent. A good sized lake extends across from section 11 to section 9, but has alkaline water unfit for use. Fresh water is found in a few sloughs. The water is permanent, but the ponds or lakes are alkaline. In dry seasons fresh water would be extremely scarce, but this season having been wet, fresh water was plentiful. No streams and no quarries or minerals exist. A small quantity of fuel can be found along the southeast end of the above mentioned lake which I called 'Fleeing Horse lake,' on account of an incident that happened to our party. Wild fowl such as ducks and prairie chicken are numerous, and a few antelope are occasionally seen. The route for reaching this township is across country from Battleford. No trails were met with.—*G. C. Rainboth, D.L.S., 1903.*

Township 40.—I found this township well adapted for cultivation, the soil being composed of a rich sandy loam, with a clay subsoil classed 2. Surface is undulating prairie covered with good grasses, making a fine grazing country. Very little surface water such as fresh water ponds or sloughs exists. A long lake (alkaline) extends through from township 39, range 2 northward as far as section 26, in this township,

and forms a sort of basin in the easterly part of the township. No wood or bush; no quarries or minerals exist, and there are no running streams. Wild fowl and prairie chicken are numerous, but we saw no large game. The township may be reached across country from Battleford. No trails were seen.—*G. C. Rainboth, D.L.S., 1903.*

Township 41.—This township is very little adapted to cultivation, although well suited for grazing; the class of soil varying from second to fourth, the latter class being sand, while class second is a sandy loam, with clay subsoil. A large, low, flat of swampy land extends from section 9 northeasterly to section 26, through which a small creek flows northeasterly into township 41, range 1. Numerous small bluffs of small poplar are found in the northern part of the township. Numerous small ponds of good fresh water are found; others contain alkaline water. No quarries or rock exposures or minerals are in sight. Wood for fuel can only be found to a very limited extent in the bluffs of poplar above mentioned. No hay marshes of any extent are found excepting in the low flat land above mentioned, where the hay could not be cut by machinery as the ground is too soft and boggy. A limited quantity of hay can be cut around the small ponds and marshes. The route to this township is across country, there being no trails visible.—*G. C. Rainboth, D.L.S., 1903.*

Township 42.—This township is high rolling prairie dotted with small bluffs of small poplar and willow scrub. Soil is from first to third class, mostly second class, beig a rich sandy loam with clay subsoil, and well adapted to cultivation and grazing. Grasses are rich and nutritious. Surface water is in sloughs and ponds, plentifully scattered over the township. The slough water is fresh and good, but in the ponds and lakelets it is more or less alkaline. No quarries or minerals were found. Firewood for camp purposes is abundant. Small quantities of hay can be cut at the edges of the sloughs; even the upland grasses in many places grow high enough to cut for hay. No trails were noticed, but the township is easy of access from Battle river, Ribstone creek or Battleford. Water fowl and prairie chickens are numerous. Large game, such as the black-tailed deer and antelope, are found. The fur-bearing animals are muskrats, red foxes, a few badgers and prairie wolves. The climate is favourable for farming, no summer frosts being noticed.—*G. C. Rainboth, D.L.S., 1903.*

Township 43.—We went from Regina to Saskatoon over the Prince Albert branch of the Canadian Pacific railway, from which point Battleford has at present to be made by horses and wagon. By the wagon road, which is very good during the summer months, the distance is about 90 miles. From Battleford take the trail along the south side of Battle river. The road is very good during the summer, but in the early spring while the streams are full owing to the melting snow, it would be difficult to pass along this trail as there are no bridges across the streams. This trail passes about one to two miles north of the township. The surface of the township is prairie, the northerly part somewhat rolling and the southerly part hilly. The surface is generally clean prairie, with very litttle scrub. In the southerly part there are numerous ponds or small lakes containing very bad water. There are no streams except Ribstone creek in the township. This stream cuts through the northwest corner of the township, is very rapid, averaging from twenty to thirty feet in width and from three to four feet in depth, and its water is fairly good. Very little timber is found in the township. A few groves in the southwesterly part contain some fairly good sized trees, but the soil in that part being sandy the trees are short and stunted. No large hay meadows were found in the township, but in the sloughs and along Ribstone creek a considerable quantity could be obtained. The water throughout the township is very poor (alkaline), with the exception of that in Ribstone creek, which is not very good, having considerable vegetable matter in it. There is no water-power of any value in the township. Ribstone creek where it passes through the township has very low banks, and could not be used for power without overflowing a large tract of country. The climate is similar to Manitoba; perhaps not quite so much rainfall or snowfall. This

year there was frost during August and September, doing considerable damage to growing vegetables, but I would not consider this usual. There is very little fuel in the township; the few groves scattered over the township would last but a short time in case the township were settled. No sign of coal was seen in the township. No stone quarries were observed, and not many field stones. Chickens, ducks, geese, partridge, &c., were quite plentiful, but no large game such as deer, bears, &c., were seen. The soil is partly clay loam and partly sandy loam, the northeasterly portion being clay loam and the southwesterly sandy loam. A good portion of the township would be good for agricultural purposes, say two-thirds of it, the balance of the soil being rather light for that purpose.—*Lewis Bolton, D.L.S., 1903.*

Township 44.—The trail mentioned in the reports on township 44, ranges 27 and 28, west of third meridian, and range 1, west of fourth meridian, continues across this township. There is a bad crossing at Ribstone creek, with an unusually heavy grade on the west side. This creek could be easily bridged and the west side graded at a small cost, though it will probably be found desirable to shift the crossing a little to the north of the present trail where the natural grades are much better. The soil is all first class, and is ideal land for farming purposes. It is covered with patches of poplar, willow and windfall, largely second growth, with some poplar up to 6 inches in diameter; about one-seventh of the township is covered with these patches. Settlers will have about enough wood for fuel and building for the first year; after that they must look out for themselves. There are some good hay marshes, but in very small patches, the land being mostly high and dry. The hay is excellent and the grass good for grazing purposes. Ribstone creek passes through this township. It is slightly alkaline, but we drank it and were thankful to get it. There are some springs of fresh water running into it, mostly on the east side. Cameron lake is salt. Settlers will have to dig for water, and should get it of good quality within 30 feet. Fuel is obtainable all over. Good sandstone quarries can be opened up along Ribstone creek. I am confident that coal exists all over the township, probably within 200 or 300 feet from the surface. Game: Duck, geese, prairie chicken and plover. There is no water-power. Ribstone creek is 4 to 10 feet deep, and banks too high for flooding. There is no timber suitable for lumbering.—*Henry de Q. Sewell, D.L.S., 1903.*

Township 45.—We reached this township from Battleford via the trail on the south side of Battle river westerly to range 2 west of the fourth meridian in township 44, thence northerly across the prairie into township 45, range 2. The soil is chiefly clay loam with clay subsoil; the southerly portion is heavier clay than the portion north of Battle river. The soil thourghout the township is well adapted for agricultural purposes where the land is not low and wet. The southwesterly portion of the township is flat and low, but can be drained easily by cutting artificial drains or ditches through the meadows and sloughs into Battle river or into the lake in section 16. That portion of the township north of Battle river is rolling prairie with very little tim- That portion of thetownship north of Battle river is rolling prairie with very little timber, that south of the river is level with numerous groves of small poplar, some of the groves being quite large. The trees are small, not many over 6 inches in diameter; the timber is chiefly alive. The valley of the river is from 1 to 1½ miles in width with very steep banks, very difficult to traverse with wagon and horses. I would judge the tops of the banks to be from 200 to 300 feet above the flats of the river. Poplar is the only timber found in the township. That portion of the township south of Battle river is full of groves of small poplar and if protected from prairie fires for a number of years, would get to be a solid forest, especially in the easterly portion. Along the valley of Battle river there are numerous hay meadows, also in the southwesterly portion of the township. The township is well adapted for ranching, having plenty of hay and protection for the cattle and horses in winter. There is plenty of water. Battle river flows through the centre of the townsip from west to east and there are numer-

ous springs along the banks of the valley of the river. In that portion of the township south of the river valley there are numerous sloughs in which the water is fairly good. The water in Battle river is good when allowed to settle, there being quick sand in it. There is no water-power in the township. Considerable fuel in the shape of poplar timber is scattered over the southerly portion of the township in groves, and along the banks of the river there is large willow, good for fuel. There is sufficient in the township to last for a good many years if protected from prairie fires. We saw no minerals in the township nor any mineral-bearing rocks. Prairie chickens, partridge, ducks, geese and sandhill cranes abound, especially along Battle river. Very few deer or bear were seen. Foxes and prairie wolves are more plentiful. The present season was very wet and cold with considerable frost in August and September, this being the case through all the Territories, it would be unjust to say that the average season would be such as this. I would think the summer should be quite as mild as in Manitoba with probably not so much rainfall in summer or quite so much snow in winter. I would consider this township well adapted for ranching.—*Lewis Bolton, D.L.S., 1903.*

Township 46.—We reached this township from Regina by the Prince Albert branch of the Canadian Pacific railway to Saskatoon, Sask., thence by wagon road to Battleford, thence westerly along the old Edmonton trail into township 47, range 2, west of the fourth meridian, thence south across the prairie into this township. The soil is chiefly clay loam but in some parts mixed with sand. I would consider the soil very good for agricultural purposes; not many sloughs exist and it is well drained by coulees, forming in the northern part of township and running southerly into Battle river in township 45, range 2, west of the fourth meridian. The loam would average from 4 to 6 inches in depth. The surface is gently rolling with a few hills in the northeast part; in the southern portions the banks of the coulees are quite steep with small creeks in the bottoms, especially towards the southerly portion of the township. The prairie is very clear of scrub of any kind and would be easily broken up for farming. There is not much timber in the township, chiefly small poplar in small groves scattered through the township, but no timber large enough for building purposes. No hay land occurs in the township except in small meadows in the coulees. There is very little water in the township outside of the coulees and in an ordinary season the supply would be very limited; the present season being a very wet one water was quite plentiful in the few willow sloughs and coulees, and of very fair quality. There is no water-power and no fuel except the small poplar in the groves scattered through the township which would be exhausted in two or three years in case the township were settled. I did not see any minerals nor any mineral-bearing rocks. There are not many stones in the township. Prairie chicken and partridge were plentiful, but not many geese or ducks, there being no ponds or lakes in the township. Some foxes and wolves but no sign of deer or bears. This being a very wet and cold summer all over the provinces makes it difficult to judge as to the average climate. I would say that in comparison with Manitoba there is not much difference, likely less snow and rain. Considerable frost in August, hard enough to destroy vegetables. The summer was very cloudy, especially the nights which were very cool.—*Lewis Bolton, D.L.S., 1903.*

Township 47.—We reached this township from Battleford via old Battleford and Edmonton trail, which crosses the northern portion of the township. The soil is chiefly clay loam with clay subsoil, the southwesterly and westerly portions are inclined to sandy loam especially around the lakes which appear to have lowered very materially in the last twenty years. The soil on the Blackfoot hills is very heavy clay. The northern portion of the township is very hilly, a range of the Blackfoot hills traverses sections 34, 35 and 36. The balance of the township is chiefly prairie. There is very little timber in the township, what there is is very small poplar in small groves

around the sloughs and ponds. No hay meadows of any size were found in the township, but in the ravines amongst the Blackfoot hills there was a good growth of grass not sufficiently high to be cut with a mower; but it would be suitable for grazing. There is very little water fit for domestic purposes; some of the willow sloughs have fairly good water, but only to a very limited extent. The water in the lakes is very bad, all of them being alkaline. There is no water-power in the township. We did not see any minerals in the township nor any mineral-bearing rocks. Prairie chickens, ducks and geese were quite plentiful. There were very few deer; not many foxes or wolves. This season being a very wet and cold one with considerable summer frost, it would not be just to say that the average season would be so wet and cold as this. I would say that it compares very favourably with Manitoba, with possibly a little less snow in the winter. This summer there were several frosts in August that would destroy potatoes or vegetables of any kind.—*Lewis Bolton, D.L.S., 1903.*

Township 48.—We travelled from Regina to Saskatoon per Prince Albert branch of Canadian Pacific railway, from which point horse and wagon conveyance is the only way to travel by wagon-road to Battleford, being about 90 miles, a very good road, considering the distances to construct it, and the nature of the country through which it passes. Battleford to Lloydminster by the Edmonton trail, which is a very fair road except while the frost is coming out. This trail passes through this township a few miles west of Lloydminster. The township is principally prairie, the northerly portion clean prairie with little or no timber; the southerly portion being in the Blackfoot hills, is very rough and hilly with considerable scrub in the valleys. There has been considerable timber amongst the Blackfoot hills, but it has been killed by prairie fires and the remaining is becoming more or less rotten, and if not used as fuel in a year or two will not be of much value. Poplar is the only kind of timber in the township. Considerable quantities of hay could be obtained in the sloughs amongst the Blackfoot hills. Considerable feed for cattle is to be found in the ravines amongst the hills, wild pea vine, vetches and other wild grasses are quite luxuriant. Water is quite plentiful amongst the hills, but is more or less alkaline; in some places springs are to be found with very fair water. As there are no streams in the township there is no water-power. Owing to this season having been wet and cold throughout the whole North-west it is hard to compare it with other portions. Heavy frosts occurred in August and September, but I do not consider this usual. I would consider the climate to be quite as mild as Manitoba, with perhaps less snow and less rainfall. There is no sign of coal in the township. No stone quarries were seen and very little stone of any kind was found in the township. Chickens, ducks, partridge, and a few geese were about the only kinds of game found in the township. The soil is chiefly clay with 4 to 6 inches of loam on top; the soil is good for agricultural purposes, but the general surface of a great portion of the township is rough and hilly, too much so for farming, but it would be excellent for ranching, as feed for cattle is very abundant amongst the hills and ravines.—*Lewis Bolton, D.L.S., 1903.*

Range 3.

Township 34.—This township is accessible from the south and along Sounding creek on the west. Soil is mainly an alkaline sand on the west half and hard clay on east half, all more or less mixed with gravel and stones. There is little or no vegetation; my horses almost starved while working in this township. The surface of all but the south 2 miles is composed of hills, not in ranges, but irregular and with gravel and boulders. A deep ravine has been worn through the hills on sections 28, 29, 20, 21 and 17 through which that part of the township is drained into a lake on sections 18 and 19. An alkaline flat and marsh is located on sections 5, 8 and 18, which drains by a small creek into a lake on or about section 11, township 34, range 3, and partly into a

lake running southeasterly from near the northwest quarter of township 33, range 3 to the southeast corner. The south 2 miles is gently rolling land, with a descent towards the last mentioned lake. There is no timber in this township. Fuel had to be brought from the Neutral hills in 36—3. Some years hay may be cut on the flats in sections 5 and 8, but this year it is no good, as the flats are too wet. Fresh water can be had in some of the small sloughs, but the lakes, marshes and large sloughs are more or less alkaline. There are no water powers, fuel, stone quarries or minerals, and very little game.—*Henry W. Selby, D.L.S., 1903.*

Township 35.—This is a high, rough, hilly and rolling township, having its north forming the south slope of the Neutral hills. It is accessible from any direction. A trail from Medicine Hat passes near the southwest corner, but is not much travelled. My freight trail passes almost east from a point about 7 miles south of the Nose hills, where it bends slightly to the northwest to join the rancher's trail from Lacombe or Red Deer. This is an excellent trail for dry weather, but during rainy weather will require watching to avoid alkali flats and creek crossings. The soil is generally a clay, mixed largely with gravel and boulders, very hard to dig, as it seems to be cemented together with alkali or gumbo. An exception may be made in the greater part of the west 2 miles, where the soil is a fair clay loam on clay subsoil, but the tops of the hills invariably have numbers of boulders. The numerous hills being abrupt and having numerous sloughs between them makes it totally unfit for agriculture, except the east half of section 2, and the west half of section 1, which are gently rolling and of good soil but stony. A deep ravine cuts the Neutral hills on section 33 and continues southwesterly forming the outlet for the drainage of nearly the whole of the north 2 miles. South of this the hills rise slightly for about a mile, on the easterly side of this rise, an alkaline basin is found, with a large number of sloughs, ponds and one lake. This basin, full of hills, occupies a large part of the central 6 sections of the township. The east 2 miles is all hills and sloughs. The southwesterly 3 miles is composed of hills from 50 to 150 feet high, irregular or not in ranges, with sloughs between them. One deep ravine runs through 6 and 7. This latter part of the township is full of boulders; the tops of some of the hills being almost a mass of stones. Vegetation is fairly good in the valleys, but is very light on the hills. This township is only fit for grazing purposes and not too much of that. There is no timber of any kind, nor hay lands. Many of the sloughs are fresh water, but most of the large ones are more or less alkaline. Summer frosts appear to have been here. There is no fuel of any kind and no stone quarries or minerals were seen. Ducks and geese and a few antelope were the only game noticed.—*Henry W. Selby, D.L.S., 1903.*

Township 36.—An old cart trail (now almost obliterated) from the east passing through the north tier of sections, forms an easy route for reaching this township from that direction. From the west the crossing of Sounding creek, which is good only in places, makes it more difficult of access from that direction. Freighting was done from township 40, range 6, around the west end of Sounding lake this year. The north end of the township lies mainly in a flat or hay marsh extending from Eyehill creek in township 37, range 3 southerly, but the land rises gradually to the south, and in the second tier of sections becomes small sand hills, more or less covered with poplar bush from 2 to 10 inches in diameter. The south boundary of this tier of sections nearly marks the line between the sand hills and the sandy loam soil forming the general surface of the lower parts of foothills. These extend southerly to the south boundary of the third tier of sections in the west half, and from these southwesterly to the south boundary of the fifth mile. This latter line forms about the foot of the high hills, which, I believe, are known as the Neutral hills. These hills rise to the south a height of 400 feet above the fifth mile, on the west side of a small water course in a valley

breaking through the hills from the southwest in sections 3 and 4 and descend rapidly to the south boundary; while on the east of the water course the hills rise to their highest point, a short distance south of the south boundary and near the township corner. The Neutral hills are clay, gravel and boulders, with intervening valleys and ravines of very fine clay loam soil, which grows good feed for grazing purposes. The hills are not in ranges, but are very much broken up, so that it is impracticable to show more than some of the prominent points of them. Deep ravines, sometimes filled with brush, bush and windfall occur among the highest peaks, making it difficult to travel over them. Sections 11 and 12 are two good sections, with a gradual descent to the lake in section 14. This township would recommend itself more for grazing than farming purposes. Some fairly good hay lands exist on sections 20 and 32. The timber mentioned is in scattered bluffs, but is nearly all about two inches in diameter, with a few scattered trees and bluffs of poplar from 4 to 10 inches, all through the brush and windfall. The water is generally fresh, although lakes 1, 3 and 4 are slightly alkaline, which may be more pronounced in a dry season. The water course running into lake No. 4 is practically dry at present, and does not appear to have any regular supply. No water-powers, coal or lignite, stone quarries or minerals were seen. A few antelope, ducks, geese and chicken were the only game seen. Climate is apparently as good as ordinary, though short seasons prevail. Frost and showers of snow occurred in September and cold with winds.—*Henry W. Selby, D.L.S., 1903.*

Township 37.—This township is easily accessible from the east or west, but from the north or south high ranges of hills make the route more difficult, connecting at the west with a trail at present used through townships 39 and 40, ranges 6 and 7. Eyehill creek in this township is easily crossed in several places; but in many places it expands into marshy flats and muddy bottoms, but at present it has no apparent connection with Sounding lake, therefore a road can easily be made between it and Sounding lake, in sections 6 and 7, passing thence either east or west. The easterly and southerly portions of this township contain the best land, the northwesterly portion being mainly high rolling sand hills, with a thick growth of scrub poplar on them. The southerly two miles is largely composed of hay lands and alkali, bottom lands unfit for cultivation, but apparently capable of drainage and the growing of quantities of hay for ranching purposes; but the water being all more or less alkaline (except lake No. 2), is rather against it. The easterly three ranges of sections are of a better class of soil, and may be classed from 1 to 2 for farming purposes. The soil being clay loam and sandy loam on clay and sandy subsoil. Very little black loam is found, except in the depressions between the hills or around the sloughs. This surface is entirely prairie, high and rolling, with ravines running northerly and southerly from this range of hills to the valleys below, but very few are so steep that they cannot be cultivated. Timber is generally scrub poplar and thick poplar brush, unfit for anything but firewood, and occupies principally the northwest sections of the township. As before stated, some hay lands exist on the flats south of Eyehill creek, but in their present state would hardly tempt a rancher to use them, the ground being so soft, treacherous and hummocky. Eyehill creek is here an alkaline creek, as are most of the sloughs and ponds, lake No. 2 being the only water met with fit to drink. The depth of the creek is about two feet; current rapid in places and sluggish in others, its width varying from two feet to two chains; possibly in the spring freshets the flat lands south of the creek may be flooded, but not to any great extent. No water-powers were noticed, as the fall of the creek does not appear to be sufficient to allow of a rise in the water without flooding the adjacent low land. No summer frosts were observed while in this part of the country, although the blackened edges of leaves would indicate that there had been during some period of the season. Other than the scrub poplar mentioned, no fuel was observed. No stone quarries or minerals were noticed nor indications of such. A few antelope were seen and large flocks of ducks, geese and

plover (golden) use this and Sounding lake as a building ground.—*Henry W. Selby, D.L.S., 1903.*

Township 38.—This township is accessible from the east or west. A very good trail could be made from the west from township 40, range 6, where the present trail passes northerly west of Ribstone creek. Soil is a clay loam, sandy loam and sand on clay and sand subsoil, most of the north half being suitable for farming purposes, while the southerly half being sandy might be better suited for grazing. All the township, except parts of sections 2, 3, 10, 11, 14 and 15, is prairie, with a number of hay meadows in the undulating portions. A depression or valley is formed between high ranges of hills, which extends from section 3 through parts of 4, 9, 8, 17 and 20, in which a number of lakes and ponds lie, and a sandy plain with grassy sloughs, and good vegetation exists on sections 22, 15, 23 and 14. The north two miles is a gently undulating prairie, with good soil and vegetation, and well suited for farming. There are a few bluffs of poplar, scrub and brush, on sections 2, 3, 10, 11, 14 and 15; amongst them there are scattered trees suitable for fuel. The water is generally bad, with alkali, except in the smaller sloughs. There were no streams, water-power, stone quarries or minerals observed. There is a hay meadow on the line between sections 26 and 27 of probably 50 acres extent, with a very luxuriant growth of hay. From the appearance of vegetation there does not appear to have been any serious frost, as strawberries and raspberries have ripened and are quite abundant in places. Fuel for present use may be obtained from the poplar bluffs in this and adjoining townships to the south and southwest, but no coal or lignite seams appear within the township. No game of any kind except ducks, geese, and a few prairie chickens were seen.—*Henry W. Selby, D.L.S.*

Township 39.—It is not difficult to reach this township. After following the rancher's trail from Red Deer to township 40, range 6, it is found to be a fairly good road with few bad obstructions. The easterly half is the best for farming purposes, being sand loam soil on clay and sand, except where a large slough is found on the southerly parts of sections 13, 14 and 15. The south six sections of the west half of the township being of a similar character may be considered a fair farming land. The rest of the land is sandy loam on alkaline clay, very rolling, with numerous sloughs, ponds and lakes between the hills, very few of which contain good water. The only timber in the township is an occasional clump of poplar or willow on the bank of two or three of the lakes, but it is small and of little value. Hay lands might be cultivated, but at present there are none. The lakes and ponds with one or two exceptions are strongly impregnated with alkali. No streams or water-power exist. Climate so far good, with an occasional frosty night (June). Wood is scarce, but can be brought from some of the adjoining townships. Stone quarries and minerals were not discovered, but antelope and the tracks of elk were seen, besides plenty of ducks, geese and prairie chickens. From a general view of this township the opinion would be formed that it would make a good farming district.—*Henry W. Selby, D.L. S., 1903.*

Township 40.—A good trail known as the rancher's trail leads to and past the corner of township 40, range 6, where we crossed on a bridge over Ribstone creek to our work. No great difficulties were met with on our easterly course. Soil is generally a clay and sandy loam with a hard clay or gumbo subsoil largely impregnated with alkali. Vegetation is very poor generally, but being cut up by deep ravines and high hills makes it more suitable for ranching than farming purposes. No timber is left on this township. There are no hay lands, though in some years a little might be made around a few of the sloughs. Except for a few small sloughs with fresh water, the water is alkaline in the large lakes and ponds. There is no water-power in the township. The climate is very fair; cool up to June 1, with occasional frosty nights. No fuel was met with in this township. No stone quarries were noticed or minerals. An occasional antelope was seen. Ducks, geese and prairie chicken are in abundance.

The township being very much broken by hills and ravines cannot be called a good one for any purpose, though a few fairly level sections could be selected if climate and soil were suitable.—*Henry W. Selby, D.L.S., 1903.*

Township 41.—The township is easily reached by trail to the crossing of Ribstone creek near the southwest corner of township 40, range 6. Soil ranges from sand and gravel to clay and sandy loam on the easterly half of the township. Vegetation is poor. The west half is totally unfit for farming purposes. It is cut by a creek bordered by large marshy banks from section 7 easterly and northerly along the central meridian, and leaving the township in section 32. The land rises easterly and westerly from the creek from 75 to 100 feet, with numerous deep ravines cutting the surface, making it generally a high, hilly and knolly township. There is no timber except one little clump of poplar in section 33. No hay lands, water-powers, fuel, stone quarries, minerals or game were seen in the township. The creek water is fairly good, and all the water met with by us in the township fit for use. A gravel pit appears to be on the north halves of sections 32 and 33. The northwesterly sections are sand and cactus the principal vegetation.—*Henry W. Selby, D.L.S., 1903.*

Township 42.—This township is very high rolling prairie on the east, and black creek, numerous muskegs, sand hills and ponds on the west make direct communication with the outside difficult. But the difficulties are easily overcome northeasterly by means of the valley of Ribstone creek, and southerly by the valley in which Black creek flows. Trails may be easily made anywhere to connect with those leading to the town. In this township at low water, Black creek may be forded at many places, but at present the high water makes it difficult to do so with safety, as the muskeg which lies on either side is too spongy and hummocky to put horses through. In section 17 my crossing (used daily) was fairly good though the water usually touched the seat of the buckboard, but the banks being hard and with an easy grade into the water, and no abrupt banks as in many places, the crossing was fairly easy to make. About 3 chains west the muskeg lies still to be crossed, and though safe enough for a few times, would soon break , as it shakes for 100 feet on either side of the vehicle being driven over it. Black creek divides the township into what may be termed good and bad parts, that part on the west and north being mainly drifting sand hills, muskegs and deep waterholes between the sand hills, filled with thick poplar willow and balm of Gilead trees, which had to be cut through, as the willow is from 10 to 30 feet high. The other portion of the township will rank from first to third-class, the best parts being the two tiers of sections on the south, and sections 15 and 22 and parts of sections 21, 16, 25 and 26. The four sections 13, 14, 23 and 24 are practically an alkaline basin filled with ponds, lakes and sloughs. The balance of the easterly portion is a mixture of sandy land, drifting sand knolls, muskegs running back from the creek and islands of good dark loam soil showing up amongst the sand knolls and it is probably better suited for ranching or grazing purposes than farming except perhaps the growing of oats or hay. Except a few scattered bluffs of poplar on sections 16, 21 and 22, there is no timber on the easterly portion, but on the westerly and northwesterly parts there are some bluffs of heavy poplar suitable for buildings or fences and fuel. Some seasons I am told by some of the ranchers considerable hay may be cut in this township, but owing to the wet summer this year it will be useless to try to make hay. No alkaline water was noticed, except that in the basin above referred to, although I have no doubt at low water Black creek, which drains several alkaline sloughs would be more or less tainted. Black creek through this township is generally sluggish until reaching the north boundary, where it narrows down between solid banks for a short distance and has a more rapid current. The width averages 25 feet and depth 2 feet. No water powers or rapids were seen. Very little summer frost has occurred so far (July). Fuel is plentiful. No coal or lignite, stone quarries or minerals of any kind were seen, and game is scarce. There is an old log building or shack with a stove in

it on section 17, which has, no doubt, been used by persons cutting hay for their cattle, but is at present unoccupied, though indications point to the fact of its being used in late years.—*Henry W. Selby, D.L.S., 1903.*

Township 43.—This township is accessible from the east or west without many difficulties. Leaving the ranchers trail in township 40, range 6, northeasterly a trail can be got easily by keeping to the west of the head of Black creek in township 41, range 5, and from the east, a small bridge over Black creek is its only obstacle. Black creek can be forded except at flood time in all places where the banks are hard, but it spreads out into muskegs on each side in many places. I built a bridge over it in section 1 where the stream is only 10 feet wide with good banks but 3½ feet deep, and it only took us an hour to do it. Ribstone creek cuts off communication from the north. Its depth was taken in several places and found to be 6 to 8 feet and only in one place 3½ feet in section 10, where we got the horses across and built a foot bridge for daily use. Its banks are almost perpendicular and it is impossible to take a loaded team across or even hitched to a vehicle. The creek is about 40 feet wide at this point and has a current of about two miles per hour. The soil is drifting sand with a few inches of vegetable matter mixed on top, giving it the sandy loam appearance. In places there is a growth of grass where the moisture remains, but on the knolls or ridges, there is very little vegetation. Exception can be made to the above for sections 35, 36, 25, 26 and parts of 34, 21, 22, 23 and 24, these being mainly black loam on clay subsoil with a heavy growth of grass and may be ranked as first-class farming land. Ridges of drifting sand cross from southwest to northwest and between them lie muskegs and deep water holes, full of dead and fallen timber and growing willows and poplar scrub, 10 to 30 feet high. The northeast portion of the township is gently rolling prairie. No large belts of poplar are found, but thick bluffs of small poplar and willow from 4 to 8 inches are scattered all over the sandy portion with light brush in spots, and heavy in other places. Hay lands are found in sections 4 and 9 and smaller pieces at different points along Ribstone creek. Water is good and fresh, owing largely to the heavy rains during the past month; no alakli was noticed. The low lands along Ribstone creek are affected by the rise and fall of the water; they extend from 2 to 60 chains from the creek, and in most places are covered with a dense growth of willows but the lands outside the muskegs would not be affected by the flooding of the creek. Although there is a rapid current, no water-power of any practical size could be maintained and made to pay. Indications (such as the turned leaf, the blackened edges of schrub leaves and the scarcity of strawberries) show that there have been frosty nights, but raspberries and gooseberries are plentiful. No fuel other than dry poplar was noticed, neither are there any minerals or stone quarriers to be seen. Plenty of tracks of deer and antelope were seen; chicken, ducks and geese are abundant. Some person has had a ranch on section 12 where the old log building and corrals are still unoccupied.—*Henry W. Selby, D.L.S., 1903.*

Township 44.—The trail mentioned in the reports upon townships 44, ranges 27 and 28, west of third meridian, and ranges 1 and 2, west of the fourth meridian, continues across this township. There is a little over one-quarter of the townships classes second, third and fourth; the rest is class one and is hard to beat anywhere, the inferior land being sand. The land is somewhat hummocky and is covered with small patches of willow and poplar. There being only a little over 5½ miles of bush in the subdivision lines, which makes the proportion of bush to prairie as 1 to 8. There is no timber of any size whatever, though occasionally a few poplar will run to 6 inches diameter. There are several excellent hay marshes, principally in sections 19 and 21 and around the lakes. There are three lakes of fresh water Bird, Burke and Eric lakes, the rest are strongly alkaline. Settlers will have to dig for water and should get all they require at a few feet from the surface. Fuel is decidedly scarce. There are no quarries but coal probably exists but does not show at the surface anywhere within

the township. Game—ducks, geese and prairie chicken. There is no water-power and no land is subject to flooding. No summer frosts were noted.—*Henry de Q. Sewell, D.L.S., 1903.*

Township 45.—We made a trail from township 44, range 3 into this township. The soil is in general first and second-class. It becomes stony, however, in the southwest corner, and is alkaline and sour in the valley of Battle river. The surface is partly prairie, with a large quantity of poplar and willow in scattered clumps. It is broken toward the northeast by the deep valley of Battle river and by several deep ravines leading into it from the north and southwest. The country all rises towards the western boundary. Timber consists of scattered clumps of poplar and willow. On the slopes of the Battle river the poplar runs up to 12 inches in diameter, and on the immediate shores the willow is often 12 inches in thickness. There is no hay. Battle river furnishes a permanent supply of fresh water. It varies from 2·00 to 3·00 chs. in width, and at the time the survey was made was too deep for men or horses to ford. The banks are high so that there is no danger of flooding. It is flowing with a current of about 2 miles per hour. There are no water-powers in the township. The climate is moderate, with heavy frosts at night in September. Dead poplar is every where available for fuel. No coal was found. No stones or economic minerals were seen. Game is represented by wild duck, wild geese and prairie chicken.—*Henry De Q. Sewell, D.L.S., 1903.*

Township 46.—This township is reached via Wetaskiwin, thence east over the old telegraph trail leading to Battleford. The surface soil is a black loam 1 to 6 inches, excepting on the high places, where the material is generally clay, or gravel and clay mixed. The surface is prairie, scrub and poplar clumps very evenly scattered over the whole township. The only timber is poplar, which is small in size, none being over 6 inches in diameter. Brule exists all over the township and portions have been burnt over this year. Upland hay is generally good throughout, with a fair quantity of pea-vine. A little slough hay may be had by draining the northwest portion. All the water found is in sloughs and is not permanent; a few of the coulees have a little water running, which is generally alkaline. No water-power exists. Battle river flows through the southwest portion in a deep valley about a mile wide and 250 feet deep. The climate is generally cool and inclined to rain during the past summer, but generally it is reported dry. Dry poplar is the only fuel available. No stone quarries or rock exposures were seen and no minerals. Game is scarce.—*H. K. Moberly, D.L.S., 1903.*

Township 47.—The township is rolling, rough and hilly, with the exception of sections 22, 23, 24 and 13, which are large flats covered with a sparse growth of grass and alkaline soil. In the northern portion of the township and sections 1, 2, 11 and 12 there is no poplar of any account. In the southwest corner of the township from sections 3 and 10 westerly there is considerable poplar, averaging 5 inches in diameter, though it only grows in bunches of 1 to 4 acres. The water in the lakes and some of the large sloughs is strongly alkaline, and for drinking purposes the small sloughs on the hills are the only ones to be used. The lakes and sloughs have dried up considerably, as high water mark is from 3 to 4 feet above the present level, and the edges or shores after a rain are very dangerous for travelling owing to the clay (gumbo), becoming moist and having no bottom.—*H. K. Moberly, D.L.S., 1903.*

Township 48.—The township is reached from Wetaskiwin by the old telegraph trail leading to Battleford. The soil is principally gumbo and gravel suitable for chinking log houses. The township is principally prairie with small poplar in southeast portion. A small quantity of hay exists in sections 23 and 26, and there is some further west. The water is alkaline and the supply would appear to be permanent in lakes. A great deal of the land has been flooded within the last twenty years, but is now dry again. Water-power does not exist there. The climate has been wet during

the past summer, but it is generally reported dry. Fuel is very hard to obtain, and we saw no indication of coal or lignite. No rock exposures were noticed and no minerals. A few chickens and coyotes were seen. In the northern portion the township is open rolling prairie with alkaline sloughs and lakes. The high places have very little soil, but show exposures of washed gravel and boulders that work their way to the surface through the alkali. In the southeastern portion of sections 1, 2, 3, 11 and 12 there is a small quantity of young poplar, but at present only large enough for fence rails. The southern two miles across the township are very rough and broken by several lakes. —*H. K. Moberly, D.L.S., 1903.*

Township 49.—This township is conveniently reached by the old Edmonton and Battleford trail which crosses the township from east to west just at its south boundary. This trail is good for all loads. The soil is of excellent quality and suitable for all the purposes of agriculture. The surface is chiefly prairie with scrub and brush and a few poplar trees scattered over the township; about one acre in a hundred is scrub, brush or poplar trees. However, there is more brush than poplar. Hay areas are scattered over the township in considerable quantity. However, the ground is rich enough to grow good hay anywhere. All the lakes and other water supplies are fresh and very good. There are no large streams in the township, and none of the land is liable to be flooded. There are no valuable water-powers in the township. The climate is delightful and summer frosts are not usual. There is sufficient wood within the township to serve for fuel for many years, and when any of the proposed railways are constructed coal can be laid down cheaply from Edmonton. There are no stone quarries exposed and no valuable mineral deposits have been discovered. Game is abundant. Ducks and prairie chicken are numerous and geese, wavies, cranes, deer, bears, snipe, plover, muskrat and foxes are not uncommon.—*M. W. Hopkins, D.L.S., 1903.*

Township 50.—The Canadian Northern railway trail which passes across the township makes a very good road for any load to reach this place. The soil is of good quality and suitable for all kinds of agriculture. The surface is chiefly prairie, but there are clumps of poplar trees and scrub and brush scattered over the township in small quantities. Hay will grow in any part of the township. The water is fresh and is sufficient and permanent. None of the land is liable to be flooded, and there are no water-powers in the township. The climate is delightful and summer frosts are not usual. There is enough poplar within the limits of the township to last for many years, and as soon as any of the proposed railways are built, coal can be shipped from Edmonton. There are no stone quarries exposed yet and no valuable mineral deposits have been discovered. Game is abundant. Ducks and prairie chickens are numerous, while geese, wavies, cranes, deer, bears, foxes, muskrats, snipe and plover are common. —*M. W. Hopkins, D.L.S., 1903.*

Township 51.—This township is now reached by the very good road used by the Canadian Northern railway company in their preliminary operations. This road in the vicinity of the township is good all times of the year. The soil is very good for any kind of crop. Small clumps of coarse brush and scrub, with a few trees ,are scattered all over the township so as to make up perhaps a fifth part of its area. A few poplar reach a diameter of 4 inches. The only wood is poplar and willow in about equal proportions. The ground is so rich that almost everywhere the grass makes good hay, even in the uncultivated state. The water is almost all fresh. There are no large streams or lakes in the township, but there are many small grassy ponds, containing the best of water. In the part of the year when these are dry wells no doubt would give abundance of water. No part of this township is ever flooded. There are no water-powers. The climate is fine and summer frosts are not usual. There is sufficient wood in the township for some time, and any quantity of good coal can be brought in from the Saskatchewan as soon as any of the proposed railways are built. There is, no

doubt, plenty of stone, but no quarries have been exposed. It is not known to contain any mineral of value. Game is plentiful. Prairie chicken, ducks, geese and cranes abound, and deer are numerous. Muskrats and foxes are also in quantity. Fort Pitt, a good harbour on the Saskatchewan, is only 25 miles distant, and the proposed Canadian Northern railway passes within two or three miles of the township.—*M. W. Hopkins, D.L.S., 1903.*

Range 4.

Township 35.—A good trail from Medicine Hat has lately been made into the east side of this township, but the approach from any other direction is very difficult owing to the hilly character of the country to the east and west. The central portion of the township is taken up by the valley of Sounding creek, which also affects the south end. This valley, from one to two miles wide, is sandy, largely mixed with alkali, making it treacherous to travel over, though in many places quite safe. The soil on the high portion is clay loam on clay and mixed in many places with gravel and boulders, but the surface is so much broken by hills and ravines and the south slope of the Neutral hills as to make it unfit for farming purposes. The vegetation is fair, and should make it good for grazing or ranching, although a certain quantity of grass grows on the flats; still it cannot be termed hay land, though the grass between the hills is heavy enough in places to make hay. Sounding creek and a small creek entering the township on the south boundary of section 6, both more or less alkaline, forms the water supply. We used it for camp and it was satisfactory. This creek grows narrower and deeper and much more crooked than in township 36, range 4, and more alkaline, as the drainage from the large alkali flats to the south and west affect it more directly than it does farther north. The width is from 10 to 25 feet, and an average of 3 feet deep, with good banks. No water-power, fuel (coal or wood), stone quarries or minerals were discovered. Ducks and geese are plentiful, but no other game. Sounding creek is shown on the maps as coming north through ranges 3 and 4 from the south. The small water courses which connect the large lakes in township 33, range 3, and the flats to the north and west is not Sounding creek, nor have they at present any connection with it. Sounding creek comes into the west boundary of 6 and flows easterly and northerly. It has two branches, one flowing easterly through township 35, range 5, and one through 34, range 5, from the southwest. The small creek which strikes the south boundary of 6 is only local, and is the drainage of a flat on northeast corner of township 34, range 5, and northwest of township 34, range 4.—*Henry W. Selby, D.L.S., 1903.*

Township 36.—This township, situated on the south side of Sounding lake and on the north slope of the Neutral hills, forms a difficult proposition, though the hills near the lake are not high, still they are abrupt, and thus a trail is difficult to travel. It is broken by Sounding creek on the east, marsh and creeks at the west end of this lake, and the Neutral hills rise to a height of 400 to 500 feet on the southwest. The soil is sandy, with very little vegetation on the north half and part adjoining Sounding creek, while the high parts of the township are nearly all clay loam on clay and gravelly clay. Much of it is mixed with gravel and boulders. None of it is suitable for farming, but the valleys between the hills contain fair grass and should be suitable for grazing or ranching purposes. There is no timber, a few small poplar in sections 24 and 25 being the west end of a belt of poplar running across 36-3, too small now for any purpose, are the only trees to be seen in the township, except a few in a ravine on sections 1 and 2 on the south boundary. The rest of the township is prairie, with patches of wolf willow on the hillsides. There are small areas of hay lands in the northwest and near Sounding creek, but of very little use this year. The water in Sounding creek is fairly good, but slightly alkaline. Several sloughs of fresh water

were found, but the ponds are all alkaline. The creek is a very crooked stream from 30 to 40 links wide and 2 feet deep, with banks from 2 to 5 feet high; current about one and one-half miles per hour. No lands are liable to be damaged by flooding, though more or less water may be held back for a short time on the flats near Sounding lake. Climate is about the same as other parts of the northwest, though probably slightly colder this year. Small quantities of fuel may be obtained from the townships north and west of it, but no coal, minerals, stone quarries or water-powers were discovered. Large numbers of ducks and geese live on the lakes here, but no other game was seen.—*Henry W. Selby, D.L.S., 1903.*

Township 37.—Entrance to this township is easily effected from the west, but from the east is more difficult on account of the peculiar formation of the ranges of hills. A range of hills over 100 feet high, enters in sections 33 and 34 in a circular form passing through 28, 27, 22, 23 and branching in section 13 runs into township 37, range 3. At the southerly base of these hills is Sounding lake cutting off communication with the east, except by going over them. That part of the township lying northeasterly of above range of hills is a gently undulating sandy plain, more or less covered with scrub, poplar and willow. A large lake (No. 2) lies near the foot of these hills, with a heavy growth of scrub poplar between it and the hill which continues up the hillsides around to township 37, range 3, except where the line between sections 23 and 24 passes. A series of lakes are found in a depression running from the most northerly end of Sounding lake to the northwesterly part of section 32, most of which are strongly alkaline. Between these lakes and Sounding lake several smaller ranges of sand hills run east and west, getting higher towards the west. Amongst these hills some considerable scrub poplar grows in bluffs and belts mixed with thick willow in places. This township is not suitable for farming but for grazing purposes; there are patches of land on which cattle could thrive well. The only fairly good soil seen was in sections 33, 34, 27 and 28 which is sandy loam on sand subsoil. That part of the township south of Sounding lake is gently rolling sandy prairie. There are very small patches of land which might be termed hay lands adjacent to the lakes mentioned above and near Sounding lake at the northwest end. The water of Sounding lake is alkaline and very shallow. All the other lakes and ponds were more or less alkaline, except No. 3 which is not very strong as we used it while on our work. There are no streams, water-powers, quarries, minerals or game in this township, but large flocks of ducks and plover breed on Sounding lake.—*Henry W. Selby, D.L.S., 1903.*

Township 38.—This township is easy of access from the east or west on the route of an old trail and not discernible except in section 33 and in section 26, following the general direction of the high ranges of hills and connecting in township 40, range 6, with the rancher's trail to Red Deer or Lacombe. An alkaline valley with a series of lakes divides the township into almost equal parts from northwest to southeast; the land in the greater portion lying to the northeast of these lakes being classed from first to second, while that on the southwest portion is a high range of drifting sand hills from 75 to 150 feet high, with a descent both northeasterly and southwesterly and may be classed only as from third to fourth. This portion is timbered in places quite heavily with scrub poplar and is more or less covered with thick poplar and willow brush. The northeasterly portion has a high range of hills passing through it almost parallel to the sand hills and the soil improves the farther one goes from the sand hills northeasterly, and there is no timber of any kind. The soil on the latter is sandy loam to clay loam on clay and sand subsoil, and a large part of it is suitable for farming purposes. On the north half of the south half of section 3 there is the largest and best block of timber, probably 80 acres of scrub poplar from 4 to 12 inches in diameter, but only fit for firewood. There are smaller belts of poplar scattered over the sand hills but not in any large quantity. There are no hay lands except on

a flat between the lakes on sections 4 and 5, some of which might be rendered useful some seasons. There is a large alkaline slough on sections 35 and 36 which is a detriment to these sections of otherwise very good land. All the water met with in these ponds, lakes, and large sloughs was found to be alkaline. There is one good fresh water slough on section 22 of about 5 acres and the vegetation around it is good for grazing purposes. No water-power was seen in this township or stone quarries or minerals and the fuel required by the settlers can be obtained easily from the sand hills. No summer frosts occurred while we were there (July), but the season being a wet one, after the heat began, though dry in the earlier part, may have had something to do with it.—*Henry W. Selby, D.L.S., 1903.*

Township 39.—An old trail, formerly used apparently from Edmonton, crosses a part of this township southwesterly, but is now almost obliterated, but a fairly good trail can be found through the sand hills to the west. The soil is very changeable and is what may be termed streaked or spotted. Sections 35 and 36 and parts of 19, 20, 29 and 30 are according to the soil first class, but are too rolling to make first class farms. Two spurs of the sand hills lie on sections 33 and 34, and 17, 8 and 9, with small bluffs of poplar and willow, where the vegetation is scarce and cactus grows. A valley with large alkaline lakes, ponds and sloughs occupies the central sections of the township. Among the lakes the land is gently undulating, of fairly good quality and vegetation suitable for ranching if good water could be procured. Another valley with alkaline ponds occupies sections 6, 7 and west parts of 5 and 8. A range of hills from 100 to 150 feet high forms the west and south boundaries of the valley in the central part of the township. Deep ravines extend westerly at frequent intervals, making the westerly part rough and hilly. The easterly and southerly portions are decidedly rolling, with a few fairly good sections, level or undulating, which are decidedly high and dry. The northerly part of the township is gently undulating, with good soil, but rather sand to be first class. What timber there is is all small and scrubby. There are no hay lands in the township. With the exception of a few fresh water sloughs, the water is alkaline and unfit for use. There is no water-power. Climatic changes are very rapid, but vegetation appears to mature very quickly, as wild strawberries have been ripe here two weeks (June) although scarcely a blade of green grass was seen at the time of the snowstorm on May 18, when 12 inches of snow fell. Poplar wood for fuel can be had readily by going 4 miles west or south. I saw no indications of coal of any description, stone or minerals. Game of any kind is scarce. This township is too rough for farming, and has not enough permanent water for ranching, though that might be had by digging or sinking for it.—*Henry W. Selby, D.L.S., 1903.*

Township 40.—What is known out here as the rancher's trail passes near the corner of township 40, range 6, and thence northerly on the westerly side of Ribstone creek. My trail is no better to reach this township than could be had in other places, though probably as direct as from township 40, range 6, as can be got. Soil of the township is mainly sandy loam on clay, and sandy subsoil. The west 1½ to 2 miles is mostly sand and sand hills. High rolling prairie extends southerly from township 41, nearly through the centre, but alkaline flats abound in the lower parts. Through the sandy knolls small poplar bluffs exist, but of small inferior quality. There are no hay lands such as deserve the term. In fact grass is poor and feed for horses scarce. Yet of course it is early in the season (June). Nearly all the ponds and lakes are more or less alkaline, though some good water can be had. No running streams were met with and no water-power. On the 5th ice formed in the cook camp ½-inch thick, and there have been heavy frosts other nights. There is no fuel except dry poplar. There are boulders in some of the hills, but no stone quarries to be seen. I have not discovered any minerals of value, though in numbers of the ponds, lakes and washouts, limonite and float hematite appear on the stones, which might indicate the presence of iron at some place not far distant. No game except antelope was seen. If season

is not too short the soil would generally be suitable for mixed farming.—*Henry W. Selby, D.L.S., 1903.*

Township 41.—Leaving the main trail to Battleford from Red Deer or Lacombe near the southwest corner of township 40, range 6, my trail runs northeasterly to the base line in range 5, and continues in the same direction to my camp near the centre of township 41, range 4. The trail is above the average in unsurveyed ground. The soil along the west boundary is sand and sandy, while the rest of the township is composed of good soil. The surface of the central and northeast portion is high and hilly and very rough prairie, more especially north of a long alkaline slough and creek. The northwest four sections and section 6 have a few small clumps of poplar willow, not of any value except for present use, firewood. There is very little of what at present might be termed hay lands, though in certain seasons there might be considerable cut on sections 17, 18, 10, 11 and 33. At present the water is high and the grass is only fairly started to grow. The water is generally good now, but it might be expected to turn alkaline later on in the season. There is a running stream leaves the township between sections 1 and 12 and drains the large slough spoken of above. It is about 50 links wide and from 2 feet to 2 feet 6 inches deep, with a current of probably 2 miles an hour. No water-power could be profitably developed. We were laid up for four days with a snowstorm, from May 17 to 20, during which time snow fell to a depth of 12 inches. Frosts have occurred frequently at night since then. Poplar in sufficient quantities for fuel can be had in townships 40 and 41, range 5, but there is no known coal east of township 38, range 14, that I have heard of. Stone quarries may exist, but I have not seen any, nor minerals of any kind. Outside of an occasional antelope, game seems to be scarce. This township, it would seem to me, is better suited for ranching purposes than any other.—*Henry W. Selby, D.L.S., 1903.*

Township 42.—This township is easily approached from east or south, the greatest obstacle being the crossing of Black creek. Sand hills of more than the ordinary character appear to obstruct the way from the northwest. With the exception of a few sections, on the east and west boundaries the soil is good ranging from first to second class nearly all over. A range of hills, one by aneroid 1,260 feet above the valley on sections 9 and 16, run through 6, 7, 8, 17 and 20, but become more on the level of the country northeasterly from them. Hills are very much broken on 6, 7, 8 and 17, making what would be otherwise good land for farming only fit for grazing purposes. The portion lying to the east and southeast of these hills is nearly a flat plain with numbers of sloughs, hay marshes, ponds and lakes, except a spur of the above hills, which breaks out on sections 3, 4, 10, 11 and 14, and parts of 1, 2 and 12, which descend rapidly to the valley mentioned above. Except for a fringe of poplar along part of east boundary and a large bluff on sections 30, 31 and 32, there is very little timber. Scattered bluffs of poplar and willow are seen on nearly every line, but are of very little value. What little timber there is, is of no value except for fuel. A small creek of good water, from 3 to 4 links wide drains the low land at the foot of the sand hills in the northwest portion, runs into lake No. 2 and passes northeasterly and out of the township at the northeast corner of section 33. Three alkaline lakes numbered 1, 2 and 3 are found in the northeast half and a fresh water lake (No. 4) lies on the west boundary. No stone quarries, coal or minerals of any kind were noticed. Game is scarce except ducks and geese and a few prairie chicken. This township is probably well suited for the purpose of ranching or grazing though a few settlers could find homes there to grow hay, oats and potatoes. No serious frosts were observed during the season.—*Henry W. Selby, D.L.S., 1903.*

Township 43.—This township can be most easily reached from the north or south, although no great obstacles are in the way in any other direction. The high ranges of sand hills in the westerly portion of the township and the thick belts of timber, slash and windfall obstructed the approach from that direction, while Ribstone creek

and its wide muskeg filled with willow brush obstruct the east and northwest. This can be easily overcome at the north boundary where the creek runs between dry banks. A bridge could be built at small cost, timber for the purpose being convenient. From the south was found to be the best way through the westerly part of township 41, range 4. The soil ranges from sand to sandy loam with a few places where clay comes to the surface more or less mixed with alkali. The central part is quite suitable for mixed farming, but as a whole it is more suitable for ranching or grazing. There is more or less timber in scattered bluffs all over, except in sections 34, 27, 26, 22, 23, 15, 14, 10, 11, 2 and 3, and this timber is valuable for building or fuel purposes, but is not of commercial value. When found in the largest belts, viz., on the west 2 miles and the east 1 mile south of Ribstone creek, it is generally of scrub variety from 4 to 10 inches in diameter, but occasionally a small belt was noticed fairly straight and of good size. From Ribstone creek westerly, the surface of the country rises 250 feet in 2½ miles, not with a gradual rise, but in ranges more or less broken. As the surface rises the land becomes more sandy and changes to rolling sand hills on the west side falling gradually south and west to the plain or gently undulating sandy land with large bluffs of poplar. An alkaline flat gradually rising from Ribstone creek occupies the greater part of the centre of the east half. This flat is capable of being made good use of for hay meadows and has large islands of dry land good for farming purposes. The land rises towards the south and west from this flat and should be rated as good first class land, though somewhat broken by shallow ravines, except on the north 4 miles of the west mile, there is good vegetation all over this territory, especially amongst the hills in the central portion where pea and vetches grow quite luxuriantly. Hay lands may be described as being parts of sections 11, 12, 13 and 14, and some years might have a large quantity, but this year is too wet for that purpose. Water is generally good, slightly alkaline. Only one lake was found and three or four ponds too small to traverse. Besides Ribstone creek, which crosses sections 35, 25 and 24, there are 2 small creeks 4 links wide at present. One enters from the south at the southeast corner of section 4 and continuing northeasterly through sections 3, 10, 11, 14, 13, 24 and into the Ribstone; another runs easterly from the hills, starting apparently in a muskeg on section 21 and joining the first one in the hay meadows. These probably in a dry year may only be seen at the time of heavy rainstorms. There does not appear to be any water-power, stone quarries or minerals. Granite boulders are seen on the hill tops and sides. There were very slight indications of summer frost. Large numbers of duck, geese and prairie chicken were noticed, but very few deer or antelope.—*Henry W. Selby, D.L.S., 1903.*

Township 44.—This township was reached by our own trail from the township to the north. The soil is chiefly sandy and best suited for grazing purposes. The surface is largely prairie with scattered clumps of poplar and willow throughout, comprising about one-tenth of the area. No timber fit for lumbering occurs. Hay grows abundantly along the edges of Ribstone creek, and is of good quality. A number of deserted shacks and cattle sheds indicate former Indian occupation. An extensive hay marsh comprises the greater part of sections 19 and 20 and the southern part of section 30. Fresh water is supplied by Ribstone creek, and this affords a sufficient and permanent supply. At the time the survey was made the stream was about 30 links wide, with an average depth of four feet, flowing with a current of about two miles per hour. The adjoining hay marshes were flooded this year to a depth of 18 inches. No water-powers occur. A dam on Ribstone creek would flood a large area of land. Climate was temperate and no summer frosts were noted. Wood is readily available for fuel throughout the township. No coal or lignite were seen and no stone quarries or economic minerals were found. Game, wild ducks, geese, turkeys, prairie chicken, plover and snipe. The township is crossed by the old Battleford trail, which at the time the survey was made was impassable on account of the high water in Ribstone creek. We

had to use our own trail, which followed to the north of the creek.—*Henry de Q. Sewell, D.L.S., 1903.*

Township 45.—We reached this township by our own trail from the township to the east. The soil is chiefly black loam on clay subsoil, and is well suited for farming. The surface is prairie with a lot of scattered clumps of poplar, which will cover about one-seventh of the whole township. There is no timber fit for lumbering. There are eight small lakes in the township with alkaline water, but sufficient drinking water may be obtained by digging holes near these lakes. There are no streams, and none of the land is liable to flood. There is no water-power. The climate is temperate with no summer frosts. No lignite or coal was seen. Wood for fuel is available for a number of years. No stone quarries or economic minerals were seen. Wild ducks, geese, prairie chicken and plover are common.—*Henry de Q. Sewell, D.L.S., 1903.*

Township 46.—This township is reached via Wetaskiwin, thence easterly over the old telegraph trail leading to Battleford. The soil consists of a black loam, generally sandy, though in some places containing clay. It is suitable for mixed farming or ranching. The surface is generally scrubby with about one-half prairie; a small quantity of large balm of Gilead grows along the banks of Battle river. Upland hay is generally distributed throughout the township between the bluffs. Slough hay is not found in large quantities, though some occurs in the northeast and northwest portions of the township. Water is generally alkaline when first appearing, though when found in creeks it seems to be much purer. The supply is permanent and the only section likely to be flooded is that extending southeasterly from the lakes to the coulee crossing the central meridian. Battle river extends through the eastern tier of sections. There is no water-power. The climate was inclined to be wet during the past summer, but generally it is reported to be dry. Small quantities of dry poplar in the eastern half are suitable for fuel. There are no stone quarries nor minerals. Game is scarce.—*H. K. Moberly, D.L.S., 1903.*

Township 47.—The township is reached via Wetaskiwin, thence easterly over the old telegraph trail leading to Battleford. It is generally suited for ranching, but a few quarter sections along the north bank of Battle river valley might be considered farming land. The north half is rolling or rough prairie country. The southern half is hilly and covered with bluffs of poplar and willow. There is no timber except a few bluffs along the edges of the river valley, and some large balm of Gilead along the river in the bottom lands. Upland hay is generally distributed and a small quantity of slough hay may be obtained in the northeast portion of the township. The water in sloughs is generally alkaline; the only permanent water is in Battle river and is good. There is no water-power. There has been much rain during the past summer, but the climate generally is reported dry. Fuel is scarce, but there is some dry poplar in places. The rock formation is generally covered with a heavy glacial deposit. No minerals were found. Game is scarce.—*H. K. Moberly, D.L.S., 1903.*

Township 48.—The route into this township is from Wetaskiwin via the telegraph trail to Battleford. The soil is generally second class and suitable principally for ranching. The country is open prairie, with the exception of the northeast corner, where a few bluffs of poplar occur. A little willow scrub appears in the northern tier of sections, but is very scattered. Poplar is found suitable for fence rails in sections 35 and 36, 25 and 26, and hay occurs, but in no large quantities except in sections 9 and 18. The water is generally alkaline. There are no springs or streams, and lakes appear permanent though shallow. No water-power is available. The climate was inclined to rain during past summer, but generally reported fine. Fuel is difficult to obtain, and there are no indications of coal or lignite. There are no stone quarries nor minerals. Game is scarce.—*H. K. Moberly, D.L.S., 1903.*

Township 49.—The Edmonton and Battleford trail crosses the township and is a good trail for any load. The soil is very good and is suitable for all kinds of farming.

It is chiefly a black loam. The surface is chiefly rolling prairie. About one-fifth is covered with scrub and brush interspersed with poplar from 2 to 7 inches in diameter. This is chiefly in a belt about 2 miles wide, running east and west across the middle of the township. The brush is chiefly willow and the scrub is poplar. The brush, scrub and trees are in about equal quantities. There is good hay scattered here and there in all parts of the township. The water is partly fresh and partly alkaline. The supply is sufficient and permanent. There are no large streams. The land is not liable to be flooded. There are no water-powers in the township. The climate is delightful and summer frosts are not usual. There is plenty of wood for fuel within its own borders, and as soon as any of the proposed railways are constructed, coal can be supplied very cheaply from the beds near Edmonton. There are no stone quarries exposed yet. There are no valuable minerals known to exist in the township. Game is plentiful. Prairie chickens, partridge and ducks abound. Foxes, deer and muskrats are numerous and there are a great many geese and wavies.—*M. W. Hopkins, D.L.S., 1903.*

Township 50.—This township can be most conveniently reached by the Canadian Northern Railway trail which passes within a quarter of a mile of the northwest of the township and runs easterly just north of it. This is a very good trail for all loads. The soil is of excellent quality and suitable for all agricultural purposes. The surface is chiefly prairie but the two westerly tiers of sections contain some very fine poplar timber up to 7 inches in diameter, which is quite sufficient for all purposes of building and fuel for many years to come. There are some good hay areas scattered over the township, but in fact hay grows in all parts of it. The water in the three lakes traversed is alkaline, but all the hay marshes and temporary bodies of water are fresh. Kenilworth lake occupies a large part of the centre of the township. This lake with its arms extends about 2½ miles from one stream to the other in almost any direction. The water is alkaline but can be used for all purposes. While camped on it for a week we used it for cooking and drinking. However, it is not without fault as a beverage. The land is not liable to be flooded anywhere in the township. The climate is delightful and summer frosts are not usual. There is plenty of wood in the west part of the township to serve for fuel for the township and as soon as any of the proposed railways are constructed, coal from Edmonton can be laid down cheap from the deposits along the Saskatchewan river. There are no stone quarries exposed yet and mineral deposits of any value are not known to exist in the township. Game is abundant. Ducks and prairie chicken are plentiful, while geese, wavies, partridge, deer, bears, foxes, muskrats, snipe, plover and cranes are not uncommon. Fish abound in the neighbouring river.—*M. W. Hopkins, D.L.S., 1903.*

Township 51.—This township is very easily reached by the Canadian Northern Railway trail which is good for both light and heavy loads. This trail crosses the township from east to west about one mile from the south boundary. The soil is No. 1 quality and is suitable for all kinds of agriculture. The surface is chiefly prairie, but there is considerable scrub and poplar from 2 to 7 inches in diameter in the northern end of the township. This will supply wood for fuel as well as for building purposes. There are large hay marshes in the southwest corner, extending into the township to the west and also in the valley of Vermillion river, the hay is very good and very heavy. It can usually be cut in the dry season of the year. Good hay, however, will grow in any part of the township. All the water is fresh and the supply is sufficient and permanent. Vermillion river passes through sections 31, 32, 33 and 34 flowing easterly. This river is about one chain wide and eight feet deep with a surface velocity of about one foot per second. In times of flood the whole valley of the river to the width of from 10 to 40 chains is flooded to a depth of 3 feet. The banks of the valley are about 100 feet high usually. There are no valuable water-powers in the township. The climate is delightful and summer frosts are not usual. There is plenty of wood within the limits of the township for fuel for many years. As soon as any of

the proposed railways are constructed coal can be brought from Edmonton by rail from the deposits along the Saskatchewan. There are no stone quarries exposed and there are no valuable mineral deposits known to exist within the township. Game is abundant. Ducks and prairie chickens are very numerous, while partridges, geese, cranes, foxes, bears, deer, muskrats and wavies are common.—*M. W. Hopkins, D.L.S. 1903.*

Range 5.

Township 35.—This township is easy of access from the west by trail connecting with the rancher's trail to Lacombe or Red Deer. Soil is mainly clay loam on clay or sand, with an alkaline clay flat through the central part of the township. The easterly and southerly portions are composed of a spur of the Neutral hills, cut through near the south boundary by a branch of Sounding creek which leaves the township on section 1, after crossing and recrossing the boundary fourteen times in sections 1, 2 and 3. The surface of the westerly portion is rolling to hilly prairie; at the north slightly lower than the easterly part and descending towards the west branch of Sounding creek. There is no timber of any kind in the township. Water is nearly all alkaline. Sounding creek impregnated with alkali, has a rapid current, a tortuous course, is about a foot deep and from six to ten feet wide. A large alkaline lake lies in sections 16 and 21, which receives the drainage from the north, east and west, but has no apparent outlet. There are no minerals, stone quarries, fuel, coal or game of any kind and no water-power of any value. The township is probably better suited for grazing or ranching purposes than for farming.—*Henry W. Selby, D.L.S., 1903.*

Township 36.—Trails from the north or west are found most easily available, although quite a fairly good one can be had south of Sounding lake. Soil is a mixed one—clay, clay loam, gravelly clay, sandy loam and alkali clay in about equal proportions. The surface is very much broken by ravines and high ridges, parts of the township being 500 feet higher than the lowest portions, and the south two miles is very hilly, with scattered boulders. Some poplar and willow trees were found in sections 20, 21, 31 and 35 in deep ravines, but are of no value except for fuel. Water is all more or less alkaline, though this summer we were able to use it for cooking and drinking purposes, but in a dry season it would probably be too strong. No water-power, minerals, stone quarries, coal or lignite was found. A few rabbits and chicken were seen. This township I would judge to be admirably suited for ranching, but not for farming purposes.—*Henry W. Selby, D.L.S., 1903.*

Township 42.—This township is reached from Lacombe, Blackfalds or Red Deer by a trail which runs from any of these to Tail creek, thence easterly, keeping south of Battle river to Ribstone creek, and thence north along the west side of the creek to township 42, range 6, which is as far as the trail goes. The route is about 180 miles, and is good in dry weather but bad in a wet season. The soil is light sandy, and parts are fit for nothing, while the balance is fair grazing land. The surface is about half prairie and half scrub and poplar. In sections 17, 18, 19, 20, 29 and 30 a considerable quantity of fair-sized poplar is found, but the quality, except in the valleys, is not good, averaging only five inches in diameter. There is more or less timber spread in small bunches over the entire township, but none that I would recommend for reservation. There is no hay. Water is generally fresh and the supply in Ribstone creek and the lakes is permanent and sufficient. Ribstone creek is 25 feet wide, six feet deep, and has a current of three miles an hour. It runs through a muskeg filled for the most part with willows, and the banks are low and generally timbered. Outside of the muskeg the lands are not liable to flood. There are no falls or rapids, and there is no opportunity to develop water-power, even by the construction of dams. Frosts were observed in September, and the climate is that of northern Alberta. There is plenty

of wood for fuel in the township, but no coal or lignite. There are no stone quarries and no economic minerals. Grouse, prairie chicken, ducks and deer are quite numerous. The township is a favourite camping and hunting ground for certain bands of Chippewa Indians, and they kill the game irrespective of seasons. I observed them on several occasions in early September riding ponies and running the deer with dogs. —*C. C. Fairchild, D.L.S., 1903.*

Township 43.—The only route to this township is by the old Battleford trail from Buffalo lake east to Ribstone creek, thence north along the creek to township 43. Ribstone creek must be crossed, but a bridge I constructed near the north boundary of section 20 washed out before I left the township. The trail from Lacombe, Red Deer or Blackfalds to Buffalo lake and thence as above east, is not bad except in a wet season. The soil on the east side of Ribstone creek is light and sandy and useless for anything except in the valleys where some very good grazing is found. West of the creek and toward the north end of the township the soil is good loam with a clay subsoil and suitable for mixed farming. The surface is generally scrubby, with numerous bluffs of poplar, averaging four inches in diameter. The best timber is found along Ribstone creek, but the greater part of it is wholly or partially fire-killed. There are good hay meadows along this creek, and in sections 33 and 34 there is probably 400 acres of good hay lands. The hay is slough grass. The water is fresh and there is a sufficient and permanent supply. Ribstone creek averages 20 feet in width, six feet in depth and has a current of three miles an hour. There are also two other small streams in the township the waters of which are exceptionally good. The hay meadows are liable to flooding to the depth of a few inches, but they are always too wet for cultivation. There are no falls or rapids, and water-power could not be profitably developed even with dams. The climate is that of northern Alberta, and frosts were common during the latter part of September. Wood is obtainable for fuel in all parts of the township, but there are no coal or lignite veins. There are no stone quarries and no minerals of economic value in the township. Prairie chicken, ducks, grouse and geese are plentiful, and a few deer were seen. The hay meadows at the north end of this township were formerly used by the Indians for wintering their cattle. There are six or eight deserted log houses and stables in and around the meadow, and I was informed by a Battleford Indian that as many as 3,000 head of stock had been fed here in one winter. —*C. C. Fairchild, D.L.S., 1903.*

Township 44.—This township was reached by the old Battleford trail, which enters the township in section 24 and crosses it about midway between the north and south boundaries. It was in only fair condition at the time the survey was made; the low-lying parts being soft on account of the very wet summer, and Ribstone creek was too deep for the horses to ford, so the camp outfit had to be carried across on a bridge. The soil is sandy around the large lake, and stony in places in the hills to the southeast, but towards the north and west the soil is chiefly loam on clay, and is well suited for farming. The surface to the southeast is hilly and broken, with much poplar and willow in scattered clumps. Towards the north and west, however, the surface is gently rolling, with scattered clumps of poplar and willow, the wooded part comprising about one-ninth of the whole. There is no timber fit for lumbering. Hay is abundant around the shore of Ribstone lake and along the course of Ribstone creek and is of good quality; a number of shacks indicate the former occupation by ranchers or Indians. An abundant supply of fresh water is found in the township. Ribstone lake and creek are only very slightly alkaline. Ribstone creek at the time the survey was made (August), was about 40 links wide, running with a current of about 2 miles per hour, and an average depth of 3 feet. During the past summer the hay marshes were partly flooded to a depth of 15 inches. No water-powers exist. A dam on Ribstone creek would flood a large area of land. Climate is temperate, with no summer frosts. Wood for fuel is readily obtainable everywhere. No coal was found, nor stone quarries or

economic minerals. Wild ducks, geese, prairie chicken, plover and snipe are common. —*Henry De Q. Sewell, D.L.S., 1903.*

Township 48.—We reached this township by following the mail trail from township 46, range 8, as far as the crossing of Buffalo coulee by the Battleford and Edmonton trail which we followed to township 48, range 5. The roads were good except where the road passes through some sloughs in township 48, range 7. The soil is principally black loam, with a subsoil of clay, producing a good growth of bunch grass. The surface is open, rolling prairie, with Grizzly bear coulee running southeasterly through the township. This coulee is about 150 feet deep, with a small stream of good water running in it. There is some scattered scrub poplar and willow in the west portion of the township which lies west of Grizzly bear coulee. There is no timber, scrub or brush east of the coulee. Good hay may be cut from any part of the township, as the grass is very good. The only water of any consequence is in Grizzly bear coulee. It is fresh, and appears to be a permanent flow. The stream has an average width of 25 links, is 2 feet deep and has a velocity of 1 mile per hour. The surface is not liable to be flooded. There are no falls or rapids, but the stream may be diverted and power developed in that way. The climate is mild in summer and wet, with frequent rains and heavy dews. There was frost enough to form half an inch of ice in September. I do not know whether there are late frosts, but would judge by conditions that there are. Small poplar and willow in the west part of the township is the only fuel to be had. No coal or lignite veins, stone quarries or minerals were noticed. There are some deer and many ducks and prairie chicken. This township is particularly good for grazing purposes.—*R. J. Gordon, D.L.S., 1903.*

Township 49.—The best route to reach this township is by the old Edmonton and Battleford trail, which is good, and runs right across the township from the northwest to the southeast corner. The soil is first-class and is suitable for all kinds of farming. about one-eighth of the surface is covered with brush, scrub and poplar from 2 to 5 inches in diameter. This is scattered generally over the township in about equal proportions. Hay grows in all parts of the township, but more in the eastern half. It makes good feed for animals. The water is partly fresh and partly alkaline. The supply of fresh water is sufficient and permanent. There is a creek that I think never dries, running through the west half of the township from north to south. The land is not liable to be flooded. There are no water-powers in the township. The climate is good and summer frosts are not usual. There is sufficient wood to supply fuel for a long time. Cheap coal of good quality can be secured as soon as any of the many proposed railways are built. It will have to be brought from near Edmonton. There are no stone quarries exposed yet, and no valuable minerals are known. Game is plentiful. Ducks, prairie chicken, geese and cranes are numerous. Foxes and muskrats are abundant, while deer are not uncommon.—*M. W. Hopkins, D.L.S., 1903.*

Township 50.—The best way to get to this township is by way of the Canadian Northern Railway trail, which is good. The soil is first class, and is suitable for all kinds of farming. The surface is chiefly prairie. However, about one-eighth part of the ground is covered with brush, scrub and poplar from two to four inches in diameter. These are generally scattered, but the belt two miles in width running across the middle of the township from east to west is the most timbered. Hay grows in all parts of the township. The water in the north and in the south of the township is fresh, but some of the lakes in the middle belt are alkaline. The supply of fresh water is permanent. There are no large streams in the township. The land is not liable to be flooded, and there are no water-powers. The climate is good, and summer frosts are not usual. There is sufficient wood in the township to furnish fuel for a long time to come. Cheap coal can be procured near Edmonton, and can be brought in by the first railway that is constructed. There are no quarries exposed yet, and no valuable minerals were found. Game is plentiful. Ducks, geese, prairie chickens and cranes

are numerous. Deer are not uncommon and foxes and muskrats are plentiful.—*M. W. Hopkins, D.L.S., 1903.*

Township 51.—The part of this township south of Vermillion river can be conveniently reached by means of the new Canadian Northern railway trail, which crosses section 1 in an east and west direction. The part north of the river is easily reached by the branch of the old Edmonton and Battleford trail going into Mr. George Powell's ranch. This branch leaves the main trail just before it crosses the river going south. These trails are all good for any loads. The soil of the township is very good and suitable for all kinds of agriculture. There is considerable good poplar timber scattered over the north four miles of the township. About one-fifth is poplar trees and scrub, but mostly poplar trees of from two to seven inches diameter. The south two miles of the township has very little timber in it. The southeast part contains much good hay marsh, which in dry seasons is very valuable. The valley of the Vermillion river is also a good hay marsh. All the water in the township save one lake is fresh. Vermillion river crosses sections 18, 19, 20, 21, 22, 27, 24 and 35, running in an easterly direction. It is about one chain wide and eight feet deep, but in times of flood the valley of the river is covered with water three feet deep for from 10 to 20 chains in width between the banks, which are about 100 feet high. There are no valuable water-powers in the township. The climate is delightful and summer frosts are not usual. There is plenty of wood within the borders of the township to supply fuel for a very long time. There are no stone quarries exposed yet, and no mineral deposits are known to exist in the township. Game is abundant. Ducks and prairie chickens are very plentiful and partridge, geese, wavies, cranes, deer, bears, foxes, muskrats, snipe and plover are common. Vermillion river abounds in fish. The Twin hills in sections 14 and 15 can be seen for many miles and serve as a landmark.—*M. W. Hopkins, D.L.S., 1903.*

Township 56.—(Northeast and west outlines.)—This township is broken on the east by the steep banks of Middle creek, averaging about 50 feet in height, running across sections 13 and 24, leaving a narrow gorge, the bottom of which is scarcely wide enough for the rapid stream to pass through. Thence to the northeast corner the land is broken by bluffs of small poplar and sloughs, with much intervening prairie with light scrub. Then for two miles west on the north boundary the hills are very high (325 feet or more) and very steep. In many places the sides are covered with scrub, but generally it is prairie. Along Moose creek it is still hilly and on the north boundary very scrubby. There is a nice tract of prairie on sections 29, 30 and 31, and south of these sections it becomes hilly and very much broken with muskegs and sloughs. The alluvial soil is very variable, ranging from 2 to 12 inches deep, and from black to light sandy loam. There is a good deal of poplar, spruce and jackpine over this township, suitable for building and firewood. Hay is not abundant.—*J. J. Dalton, D.T.S., 1903.*

Range 6.

Township 1.—This township is one-half rolling prairie and the other half rough and broken by numerous deep coulees running into Milk river, which flows southeastward across the northeastern part of the township. The country is very much broken along the river valley and is known as the 'Bad lands of Milk river.' Bush is found along the river valley in places and the township is well suited for stock-grazing, as the grass is of a good quality and the soil is second, third and fouth-class.—*E. J. Rainboth, D.L.S., 1902.*

Township 2.—This township is a rolling prairie broken in many places with deep coulees running into Milk river, which crosses the southwest corner of the township. It is well adapted for stock-grazing, having good grass, water and shelter. In the val-

ley of the river is found bush in places. The soil is second class, varying from sandy loam to clay loam. Many of the coulees have cut banks and have depths of from 75 to 400 feet.—*E. J. Rainboth, D.L.S., 1902.*

Township 42.—The best route for reaching the township is by the trail from Lacombe to Tail creek, thence to Redwillow creek settlement, thence keeping south of Battle river a trail runs to Ribstone creek in township 40, thence north along Ribstone creek to township 42. The trail is good except in a wet season when it is almost impassible for heavy loads. The soil is sandy for the most part, but is good enough for mixed farming. The surface is prairie with some 4-inch poplar in the centre and westerly parts and along Ribstone creek. Considerable scrub is found in most parts of the township and the surafce is generally covered with light scrub which would offer little difficulty in breaking. There is enough poplar in the township to supply the wants of settlers for some years for building, fencing and firewood. There is about 80 acres of good hay land in sections 11, 12, 13 and 14 along Ribstone creek, the hay being slough grass. The water is generally fresh and the supply in Ribstone creek is permanent and sufficient. Dixon lake is, however, strongly alkaline and unfit for use. Ribstone creek averages 20 feet in width and is 6 feet deep with a current of about three miles an hour. It flows through a deep, almost impassable muskeg but outside of this no flooding occurs. Owing to this muskeg the water could not be used for power purposes. There are no falls or rapids. The climate is that of northern Alberta. No summer frosts were observed. Wood is the only fuel obtainable, but sufficient for settler's use can be obtained in the township. There are no coal or lignite veins in the township and no stone quarries. There are no economic minerals as far as ascertained. Prairie chicken, duck, geese and deer are quite abundant.—*C. C. Fairchild, D.L.S., 1903.*

Township 43.—The trail shown in this township leads south along Ribstone creek to a junction with the old Battleford trail which runs westerly between Battle and Red Deer rivers crossing Tail creek near Red Deer river. From Tail creek trails lead either to Lacombe, Red Deer or Blackfalds. The trail is good except in wet seasons. The soil for the greater part is light and sandy and is suitable for grazing only. The surface is generally scrubby, with open prairie on the southwest side, and more heavily timbered on the east side, especially around House lake, where there is some good poplar averaging 7 inches in diameter. The greater part of the rest of the timber is suitable only for fencing or firewood. The water is generally fresh, with a permanent and sufficient supply. Ribstone creek crosses the southeast corner of the township through a deep marsh. The creek follows two or more channels and a decided current was noticed in places in the marsh. It is about 30 feet wide and 6 feet deep, current 2½ miles an hour. There are no falls, rapids or water-powers available nor could power be developed by dams. The climate is the same as that of northern Alberta. Frosts were common in October, but there were no summer frosts. Wood is obtained in the township for fuel. There is no coal or lignite. There are no stone quarries and no economic minerals in the township. Duck, geese and chicken were seen in considerable numbers. The central part of the township is very sandy in places and the surface is rough and broken from the action of the wind on the sand.—*C. C. Fairchild, D.L.S., 1903.*

Township 44.—The trail followed into this township was that of some ranchers who had recently moved into township 44, range 5, from the south; it had only been used by them for a short time previously. The soil varies from dark to sandy loam, with clay or sandy subsoil, and is valuable agricultural land; the presence of wild pea vine in abundance indicates a strong soil. The surface is gently rolling throughout most of the township, with a gradual rise toward the west boundary. The greater part is prairie, with, however, scattered clumps of poplar and willow throughout. A small quantity of large poplar and whitewood 5 to 8 inches, occurs scattered around

the shores of Parsons and Rainy lakes. The water in these lakes is alkaline, but sufficient fresh water for drinking purposes was found in the numerous small sloughs. No streams or water-powers occur. Light frosts were encountered while the survey was being made (end of August). Fuel consists of dead poplar, and is found scattered throughout the township. No rock or economic minerals are exposed. The game is prairie chicken and wild ducks.—*Henry De Q. Sewell, D.L.S., 1903.*

Township 45.—This township can be reached by trail from Wetaskiwin, via Heatherbrae and Moose creek trail, or by the government mail route from Lacombe to the junction of Iron creek and Battle river, thence northeasterly along the southerly side of Battle river to the northwest corner of the township. The trail from Wetaskiwin is now in very good condition, having been improved this season. The soil in this township is good, averaging about 6 inches of black loam, with clay subsoil; the southern and central part is rated first class and suitable for farming, the northern tier of sections is sandy soil and rated third and fourth class. The surface is undulating prairie, more rolling and hilly in the north and dotted over with willows and poplar scrub, being mostly all fire-killed last May; there are some bluffs of poplar from 4 to 6 inches in diameter on sections 2, 3, 4, 5, 6, 11, 12 and 14. The grass in this township is good, with a large quantity of good low land hay on sections 4, 5 and 6, also small hay sloughs scattered all over the township. The water is generally fresh, the only permanent supply being the Battle river, which crosses the northwest corner of section 31, and a lake on sections 25 and 36. There is no flood land, and no water-power could be developed. Weather has been wet and cold for the past few years. The first frost came on August 13 of this year. The only fuel is a limited quantity of willows and poplar on sections 2, 3, 4, 5, 6, 11, 12 and 14, with a few smaller bluffs scattered over the township. No coal or lignite, stone quarries or minerals were observed. Prairie chickens, rabbits, duck, geese and deer were seen.—*Hugh McGrandle, D.L.S., 1903.*

Township 47.—This township can be reached by the Battleford trail passing through township 48, range 6. The soil is mostly composed of black loam and black sandy loam resting on a subsoil of clay or sandy clay. It is suitable for cultivation. The surface is prairie and bluffs through the eastern portion of the township, the remainder being scrubby prairie and bluffs. The timber found in the bluffs scattered in the township is only fit for fuel, with the exception of a few bluffs of black poplar of a certain size bordering on Battle river that can be used for building. This timber varies from 5 to 18 inches in diameter. About one-third of the trees are rotten at the heart. Hay can be procured from the neighbourhood of the different lakes, sloughs and marshes which are situated on sections 22, 27, 29, 31, 32, 34, 35 and 36. The pasture is also very rich here. Battle river, the lakes, sloughs and ponds contain clear and fresh water. The depth of water in Battle river varies from 6 to 10 feet, with a current averaging one and a half miles an hour. This river is from 1·50 to 2·00 chains wide all along that portion situated in this township. I do not think that any water-power can be developed on this river on account of the flats bordering the river being too wide. The construction of a dam would be very expensive, and at the same time would flood miles of the best land. Fuel can be procured in large quantities all through the township. There is no stone quarry nor mineral of any description. The game consists of deer, badgers, porcupines, prairie wolves, muskrats and rabbits. Partridges and prairie chickens are plentiful here. In summer time ducks, wild geese and cranes ought to be found in large numbers also. Battle river runs in a deep valley. There are remarkable hills on both sides of the river from 200 to 500 feet in height. The country in that part presents a beautiful aspect. Roads can be made in all directions in this township with very little expense. Here as well as in township 47, range 7, and 48, range 6, settlers will find all they want to meet their requirements. The climate seems to be good, and there are no summer frosts.—*J. B. Saint Cyr, D.L.S., 1903.*

Township 48.—This township can be reached by the Battleford trail, which crosses this township on sections 11, 12, 14, 15, 16, 21, 20 and 19. The soil is composed of black

sandy loam resting on a sandy clay subsoil. Though the township is hilly it is, with the exception of sections 22, 23 and 26, where the hills are very high and steep, suitable for farming purposes. The surface is prairie and bluffs in the eastern portion of the township, and scrubby prairie and bluffs through the western portion. These bluffs are composed of small poplar and willow, only good for fuel. There are no large bluffs. In the vicinity of the lakes are found hay marshes producing a large quantity of very good hay. These marshes are situated principally on sections 2, 3, 10, 11, 14, 28 and 29. The water is fresh in every lake, slough, pond and brook in the township. The brook and lakes draining this part of the country flows towards Grizzly Bear coulee at the northeast corner of the township. There are no water-powers. The climate is good here, there being no summer frosts to injure the crops. Wood for fuel can be procured all through the township in the different bluffs for many years to come. There are no stone quarries nor minerals of any description. The game consists of prairie wolves, badgers, porcupines, deer, rabbits and muskrats. The feathered game is the same as in the other townships of the neighbourhood. Wild geese, partridge, prairie chickens, cranes and ducks of all kinds are plentiful during the summer. This township being well situated on both sides of the Battleford trail, the main road of this country, will no doubt be settled at an early date, and will prove to be good in all respects. Settlers will find here all they want to meet their requirements. As farming and grazing land this township cannot be surpassed.—*J. B. Saint Cyr, D.L.S., 1903.*

Township 49.—This township is very conveniently reached by the Edmonton and Battleford trail, which is good for all loads. It runs east and west across the township very near its northern boundary. The soil is excellent quality and suitable for all agricultural purposes. The surface is chiefly prairie and what wood there is is mostly scrub and brush. The water is partly fresh and partly alkaline. Grizzly Bear coulee runs across the township from section 30 to section 12. The stream running in this coulee is usually about three feet deep and six feet wide and the valley through which it runs is usually four or five chains wide at the bottom and about a hundred feet deep with a very easy slope in places. The bottom of this valley is mostly a sort of marsh two or three feet deep with soft bottom in places. This stream is very good water. A lake on the south boundary of the township is fresh, while one on the east is alkaline. There is fine hay in the southern part of the township. There are no water powers. The climate is delightful and summer frosts are not usual. There are no stone quarries exposed and no valuable mineral deposits have been discovered. There is enough wood fuel for some years, and when any of the proposed railways are constructed, coal can be laid down very cheaply from Edmonton coal beds. Game is abundant. Ducks and prairie chicken are numerous and geese, wavies, cranes, deer, bears, foxes, muskrats, snipe and plover are not uncommon.—*M. W. Hopkins, D.L.S., 1903.*

Township 50.—This township is very conveniently reached by either the old Edmonton-Battleford trail or the new Canadian Northern railway trail, both of which cross the township; the former crossing the southern part of the township and the latter the northern part. These trails are both good for either light or heavy loads. The soil is of No. 1 quality and is suitable for all kinds of agriculture. Brush, scrub and small clumps of poplar cover about one-eighth of the surface. The larger part of this is scrub or brush, but there is considerable wood either for fuel or building. The greater part is in the northern part of the township. There is a very large quantity of good hay grown in the valley of Vermillion river, which can be gathered when the season is not too wet. Hay areas are scattered all over the township. There is plenty of good water in the township. A couple of the lakes are slightly alkaline, but most of the water is fresh. Vermillion river runs through the northern part of the township. In fact the northern boundary of the township lies almost wholly in the marsh through which the bed of the river winds. In times of flood this hay marsh is covered

to a depth of 3 feet, so that the valley of the river looks like a long marsh half a mile wide in places. The river is 1 chain wide and 8 feet deep. There are no valuable water-powers in the township. The climate is delightful and summer frosts are not usual. There is sufficient wood in the township to serve for fuel for many years. There are no stone quarries exposed and no valuable mineral deposits known to exist. Game is very plentiful. Ducks abound and prairie chickens, partridges, foxes, deer, bears, geese, cranes are not uncommon. There are a great many fish in Vermillion river.—*M. W. Hopkins, D.L.S., 1903.*

Township 56.—(North, east and west outlines.)—The north boundary is very flat and for the westerly four miles very broken with marsh and sloughs. Section 25 and 36 are fit for cultivation, but south of these it is much broken with hills and muskegs. The western boundary is mostly rolling and open with light scrub and occasional thickets. Within one-half mile of the river the hills are high and rugged and along the river there appears to be a good deal of timber, such as birch, poplar and spruce in some places. There is good hay land on the north boundary of this township. The soil is deep black loam with a variable subsoil from clay to sand.—*J. J. Dalton, D.T.S., 1903.*

Range 7.

Township 2.—This township is a hilly and broken prairie across which Milk river flows eastwards. Messrs. Spencer Brother's home ranch is located in this township, which is considered one of the best for ranching purposes, principally on account of the shelter afforded stock between the hills in the numerous coulees and along the river bottom which in many places contains clumps of bush. The grass is of a good quality and the soil is second class, varying from a sandy loam to a clay loam.—*E. J. Rainboth, D.L.S., 1902.*

Township 38.—The route to this township is by trail from either Lacombe or Blackfalds, which are the nearest railway stations. The soil is generally sandy loam with clay subsoil. The surface is open prairie, rough and hilly. There is no timber whatever. As the township had been burned over a short time before survey was made, I could not estimate the quality of the hay, but it would appear to have been fairly good and plentiful. No fresh water is to be found. The only stream is Ribstone creek which touches one section at the northwest corner. Climatic conditions are said to be unusual this year, cold and cloudy weather prevailing to an unusual extent, as also early frosts. No fuel whatever is obtainable in the township. The adjoining township to the south has some timber. There are no stone quarries and no minerals were noticed. Ducks, geese and prairie chickens were the only kinds of game seen. This land is not suitable for cultivation, being too hilly, but is well adapted for grazing or dairy purposes, providing fresh water can be had by sinking wells. There are no settlers at present in the township. —*George Edwards, D.L.S., 1903.*

Township 39.—This township is reached by trail from Lacombe station on the Calgary and Edmonton Railway. The soil in the southern part of the township is a heavy clay, almost as hard as rock. This applies particularly to the sections adjoining Ribstone creek. In the northern part of the township there is a light depth of black loam underlaid by sand or clay. The surface is open prairie, very rough, being a portion of what is known as 'The rough meadows.' The Tit hills form a prominent feature, rising to a height of 200 to 300 feet above the lesser adjacent hills. There is scarcely any timber. What there is consists of a few small clumps of poplar and willows in the northern part of the township. Hay is plentiful, but the quality is not very good. There is no fresh water. The only stream is Ribstone creek, which traverses the south part of the township from west to east. No water-powers are available. The weather conditions were unusual, wet and cold almost continuously during August and

September. No fuel available. A supply might probably be had to some extent in the next township to the east. No building stone or quarries. No minerals. Ducks, geese and prairie chickens were plentiful at time of survey. The land is well adapted for dairy farming or grazing, but too rough for cultivation. There are no settlers in this township.—*Geo. Edwards, D.L.S., 1903.*

Township 42.—The best route to this township is from Wetaskiwin going east on a trail which goes to Stevens' ranch on Iron creek, about 4 miles from Battle river. There is no trail from this point, but Battle river could be forded at low water and thence a course south of east leads, after mounting the river bank, across a comparatively level prairie to the township. The trail is good except in a wet season. The township can also be reached from Lacombe, Red Deer or Blackfalds by crossing Tail creek and following the main route used this year by the Inspector of Surveys to Battle river at the south bend, thence on the old trail to Ribstone creek to Dixon's ranche and thence west 6 miles to the township. This latter route is much longer, and in no way better than the first, except that it avoids crossing Battle river. The southern two-thirds of the township is rolling prairie, with numerous willow sloughs and bunches of willow and other scrub, while the north part is light sand and partially covered with stunted poplar averaging 4 inches in diameter and much scrub, with water in places. The southern portion is suitable for mixed farming, while the north part is fit only for grazing and that only in the hollows. Little of the timber could be used for building or fencing, but there are a few bluffs along the north boundary which might do. The only trees seen were poplar. There is no hay except high land prairie grass. The only water is in small ponds all of which I believe dry up in some seasons. There are no streams or water-powers and no chance to develop power. The climate is the same as that of northern Alberta, with no summer frosts noted. Wood is scarce, but lying west and south along Battle river there is said to be considerable lignite probably 40 miles from the township. There is no coal or lignite in the township. There are no stone quarries and no minerals in the township. Ducks, chicken, grouse and a few deer were the game seen.—*C. C. Fairchild, D.L.S., 1903.*

Township 43.—This township is reached from Lacombe or Red Deer by the trail to Tail creek and thence along the old Battleford trail to Ribstone creek, thence north along Ribstone creek to township 42, range 6, and thence westerly into the township. The trail is good except in wet weather. The soil in the southwest half of the township is fit only for grazing and only the hollows fit for that. The northeast part of the township is better and is suitable either for grazing or mixed farming. The southwest is sandy, while the northeast is heavier, with clay subsoil in places. The surface is prairie, with considerable scrub and sloughs in the southern part. There are bunches of poplar averaging 5 inches in diameter around the lakes and sloughs in the south part of the township, but not more than would be required for use by settlers. There is no hay in the township. The water is generally fresh, except the lakes in the northeast part, which are very strongly alkaline and quite unfit for use. The supply is permanent. There are no streams and consequently no water-powers. The climate is that of northern Alberta, and I do not know whether there are any summer frosts, as I was not in the locality until October. Wood is the only fuel obtainable. There are no coal or lignite veins in the township, and no stone quarries or minerals. Ducks, geese, prairie chicken and deer were seen in the township.—*C. C. Fairchild, D.L.S., 1903.*

Township 45.—This township can be reached by trail from Wetaskiwin via Heatherbrae and Iron creek trail, or by the government mail route from Lacombe to the junction of Battle river and Iron creek, thence nrotheasterly along Battle river to the northwest corner of the township. The trail between Wetaskiwin and Heatherbrae is now in fine condition, having been repaired this season, and from Heatherbrae east the trail is not yet fenced, so with the exception of the two or three small creeks

the bad places can be avoided. The soil is mostly sandy, and only fit for grazing in wet seasons. The eastern tier of sections is fine land; the surface is rolling prairie, and badly broken by ravines along Battle river. The southern tier of sections is mostly all sand hills covered with a growth of stunted poplar averaging 4 to 6 inches in diameter. There is also some poplar and willow in the ravines and along the river banks, 6 to 8 inches in diameter, but with the exception of a few small patches on the river bank it has all been killed by the fire last May. There are no sloughs to speak of except in sections 1 and 2. Battle river enters the township on the boundary of section 19, and flows in a deep ravine in a northeasterly direction through sections 17, 20, 21, 28, 27, 34, 35 and 36, and is from one and a half to two chains wide and four to six feet deep; current three to four miles per hour, and floods very little and even in freshets. The only permanent supply of fresh water is in Battle river and numerous small streams flowing into it from ravines along its course. There is an alkaline lake on the south boundary of section 2 and another in section 4. Climate cold and wet; first summer frost on August 13. The only fuel is poplar and willow, obtainable in the southern tier of sections and in ravines along the Battle river. No coal or lignite, exposed rock or minerals. Prairie chickens, duck, geese, rabbits, deer and bears are found.—*Hugh McGrandle, D.L.S., 1903.*

Township 46.—This township was reached from Wetaskiwin, Alberta, by trail passing by way of Pipestone creek, Rosenroll, Demay lake and Round hill, which is on the Battleford and Edmonton trail. We followed this trail easterly to range 13, where we took a southeasterly course to township 46, range 12. We then travelled easterly through townships 46, range 12, 11, 10, 9 and 8 to township 46, range 7. The roads were bad ; many mudholes and sloughs to pass through, and in general they were very soft. The soil is black loam and sandy loam with a subsoil of clay, producing good grass and some small poplar and willow. The surface is rolling prairie, with scattered poplar scrub and willow. The prairie grasses may be cut for hay, but there are no meadow spots except in Buffalo coulee, where there is some good meadow. The grass there was about 5 feet high, being wire grass, June grass and broad leaf, with a short meadow grass. In my judgment I should say that 500 tons of hay could be cut within a distance of two miles along the bottom of the coulee. There is a small stream of good water in Buffalo coulee. Bunch grass is the principal crop outside of the coulee. The water is fresh in small ponds and sloughs, and the supply is not permanent. Battle river touches the southeasterly corner of the township and enters the east end of the township. It carries a large volume of water, being about two chains wide and six feet deep, with a velocity of two miles per hour. The surface is not liable to be flooded. There are no falls or rapids in the township, but by diverting the water into canals, at great cost, water-power might be developed. The climate is mild and wet, with heavy rains frequently, and snow in September. There were late frosts about May 20 and early ones about September 15. Small poplar and willow in the township and surrounding country is the only fuel to be had. No coal or lignite veins, stone quarries or minerals were observed. Great numbers of wild ducks and prairie chickens, some elk and deer. This township is well suited to stock-raising.—*R. J. Gordon, D.L.S., 1903.*

Township 47.—This township can be reached by the Battleford trail, crossing township 48, range 7. The soil generally is composed of black loam or black sandy loam, resting on a subsoil of clay or sandy clay, and is well adapted for farming. The surface is prairie, with bluffs of poplar and willow which are only fit for fuel. There is no construction timber in the township. The bluffs are scattered throughout the township. The land is hilly and broken in the vicinity of Buffalo coulee, which crosses the township in sections 30, 19, 18, 17, 16, 15, 10 and 3. In the bottom of the coulee there runs a good-sized brook. No great quantity of hay is to be found in the township, but some can be cut on sections 20, 25, 29 and 36.

There is no water-power that could be utilized, though good water is found in almost every creek, pond, lake and slough. There are no stone quarries nor minerals of any description. Game here consists of foxes, prairie wolves, badgers, rabbits, a few deer, prairie chickens and partridges. There is only one lake of any extent in section 25, so that geese and ducks are not found in this part of the country. Considering its merits for farming, this township is one of the best I have subdivided this summer. It is rolling and undulating, and every portion of it can easily be ploughed, except Buffalo coulee. Settlers will make a judicious choice in establishing themselves here, where there is no summer frost to injure the crops.—*J. B. Saint-Cyr, D.L.S. 1903.*

Township 48.—From Wetaskiwin the old Battleford trail runs through this township, and it is a good trail in any season. The soil is black loam on a clay and sand subsoil. It is suitable for either farming or ranching. There is considerable spear grass, however, which would be injurious to a certain extent to sheep or cattle. The township consists of gently rolling prairie covered with scattered clumps of scrub and bush. There is one large bluff of green poplar running from 4 to 15 inches in diameter, covering about 400 acres, lying on sections 16 and 21, which is suitable for building timber. There is considerable hay land surrounding all the large lakes, and it is of good quality. The lakes are permanent and the water in them is fairly good. There are no water-powers. The climate is the same as Edmonton. No frosts occurred until the first of September. There is plenty of dead poplar to supply settlers with firewood for several years. There are no stone quarries and no minerals. The game consists of ducks, geese, prairie chicken and occasional deer.—*M. B. Weekes, D.L.S., 1903.*

Township 49.—This township can be reached either from Edmonton or Wetaskiwin, as good trails from these places run within two miles of the south boundary. The soil is black loam on a clay loam subsoil, and is very rich. The growth of grass is exceptionally heavy, but the land is too rough for farming, although admirably suited for ranching. The surface as a whole is hilly or broken, but none of the hills are very high. There are numerous sloughs and ponds and some lakes, and the prairie is partly covered with scrub and willows. Grizzly Bear coulee cuts off the northern part of this township. The coulee cannot be crossed by horses or cattle at any point in the township. There is a belt of timber about 12 chains wide along the south bank of the coulee, consisting of poplar and an occasional birch. A considerable amount of the poplar is dead. This timber is suitable for building purposes. Good high land hay can be cut at almost any point. There is very little slough hay. The lake in Grizzly Bear coulee contains considerable alkali, but the rest of the lakes and ponds are fresh. The water supply is permanent. There is no water-power in the township. The climate is the same as in the settled districts around Edmonton. There is plenty of dry poplar to furnish firewood for settlers for many years. It can be procured almost anywhere, but in greater abundance along Grizzly Bear coulee. There are no stone quarries and no minerals. Prairie chicken, ducks and geese abound, and there are a few deer and bears.—*M. B. Weekes, D.L.S., 1903.*

Township 50.—This township is reached from either Edmonton or Wetaskiwin. Good trails run from both places through the township. The soil is a vegetable mould on a clay, clay loam or sandy loam subsoil. This township is well adapted for mixed farming. The south half of the township is rolling or heavy rolling prairie. The north half is gently rolling prairie and is as fine a piece of country as any in the Territories. Vermilion river cuts off a small portion of the north boundary. The surface is partly covered with clean poplar scrub and some willow scrub. There is no timber large enough for building purposes, except along the south slope of Vermilion river, and in some of the coulees running in to it. There is sufficient here, however, to supply the needs of settlers. The timber is poplar and ranges in size from 6 to 12 inches in diameter. There is no low land hay in the township, but the ordinary prairie grass is sufficiently heavy to make good hay. There is a large lake on sections 14 and

15, but the water in it is not good, being somewhat alkaline. The water in the sloughs and ponds, however, is fresh and good for drinking. The water supply is permanent. There are no water-powers. The climate is the same as in the Edmonton district. There were no frosts during the time I was in the township (July). There is considerable dead poplar scattered over the south half of the township and in the north half along Vermilion river; there is enough to last settlers for several years. There are no stone quarries and no minerals. Prairie chicken, ducks and geese are numerous. This is the best township I surveyed during the season. The proposed line of the Canadian Northern Railway runs through the middle of it. Vermilion river, in this township, is a stream about one chain wide, and is quite deep, running from 6 to 10 feet. The current is about three miles an hour. The water is fresh.—*M. B. Weekes, D.L.S., 1903.*

Township 56.—(North, east and west outlines.)—This township is very much broken with hills on the north from sections 36 to 33 by the banks of Atimoswe creek, which are from 40 to 60 feet high. Then it becomes hilly again in section 32 and on section 31 is about 300 feet above the Saskatchewan and extends both north and south. The western boundary is also hilly with numerous sloughs and knolls; towards the river they are 300 and 400 feet high by approximate barometric measurement. Soil a good depth of black and sandy loam. Poplar for fuel is abundant, but there is not much building timber. Hay is not plentiful.—*J. J. Dalton, D.T.S., 1903.*

Range 8.

Township 2.—This township is a rolling prairie across which Milk river flows in an easterly direction. It is broken by numerous deep coulees with steep banks from 75 to 300 feet deep. Although rough and broken it is well adapted for stock raising, as the grass is good and the river valley and coulees afford the necessary shelter in stormy weather. Some scattered bush is found along the river. Soil is mostly a clay loam of second quality. 'Pend d'Oreille' police post is on section 21 in the river bottom.—*E. J. Rainboth, D.L.S., 1902.*

Township 37.—This township lies a few miles south of the main trail running from Red Deer to Battleford. The soil is a good black sandy and clay loam with a clay subsoil, very dry and is ranked as second class land, only suitable for grazing purposes. The surface is mostly hilly prairie very rough and dotted thickly with ponds, swamps and lakelets. The water in the lakelets is all alkaline. The land rises in the northeasterly corner into what is called the Neutral hills some 400 feet above the plain, cut by numerous ravines. Another range of hills about 300 feet above the plains touches the southwest corner in sections 6 and 7; these are called the Nose hills. There is no timber in the township. Very little hay is found in this township. Water is very scarce. The water in the lakelets and ponds being alkaline, drinking water is only found in the ravines in the hills. Wood for fuel is found in sections 6, 7, 24, 25 and 26. No coal or lignite veins were discovered. No rapids, falls or water-powers are available. No stone quarries or minerals were found. Antelope was the only game seen.—*Joseph A. Carbert, D.L.S., 1903.*

Township 38.—The route for reaching this township is by trail from Lacombe station on the Calgary and Edmonton railway. The trail is a fairly good one on the whole, having the usual number of bad holes, through sloughs, &c. The surface is open prairie, exceedingly hilly, being part of a district known locally as 'The rough meadows.' There is no timber whatever except a straggling fringe of willows and scrub along Ribstone creek. Hay of inferior quality is plentiful. I found no fresh water whatever, all water being alkaline, and in some small lakes intensely acrid. The only stream is Ribstone creek, which traverses the township diagonally from southwest to northeast. At time of survey, its width varied from 15 to 50 feet, and depth

from 6 to 8 feet, the water being high at the time. Current sluggish. No indication of overflowing its banks. No water-powers. Almost continuous rainy or cloudy weather prevailed at time of survey. Frosts occurred in latter part of August and through September. There is no fuel to be had in the township, the only available sources of supply being in adjoining townships, north and south, where there are scattered clumps of timber. There are no stone quarries and no minerals were observed. Ducks, geese and prairie chickens were the only game seen. This land is suitable for grazing, or dairy farming, but is unfit for grain growing, owing to the extremely rough nature of the surface. There are no settlers in this township.—*George Edwards, D.L.S., 1903.*

Township 39.—This township is reached by trail from Lacombe station on the Calgary and Edmonton Railway. The soil in west and south parts consists of a small depth of black loam with stiff clay subsoil and in other parts of township, black loam to a depth of 3 to 6 inches, with sandy subsoil. The surface is open prairie, very hilly, being another of the townships embraced in the 'rough meadows' area. There is no large timber, but the northern half of the township has numerous clumps of small poplar and willows. The poplar is not large enough for building purposes, but suitable for fencing. Hay is plentiful but of inferior quality. There are no streams in the township, and no fresh water, the only water being the small lakes and sloughs, all of which are alkaline. Climatic conditions this year are said to be unusual, cold, cloudy and rainy weather with little intermission and heavy frost in September. The only fuel available is small patches of poplar in the northern part of the township. There are no stone quarries and no minerals. The only game to be noticed was ducks, geese and prairie chickens. This land is too rough for cultivation, but suitable for grazing purposes or dairy farming. There are no settlers in this township.—*Geo. Edwards, D.L.S., 1903.*

Township 40.—The township can be reached by road from Wetaskiwin, Lacombe and Red Deer. The road is not in good condition. The soil is fairly good, principally second class. It is suitable for ranching or farming. The surface is rolling and somewhat rough. It is more or less thickly covered with bluffs of poplar suitable for firewood. Hay can be secured from numerous sloughs and from the valley of a branch of Ribstone creek which traverses the township. The water is fresh in the sloughs and in the above mentioned stream; the supply is permanent. The above stream consists of long sloughs, some of which are six and eight chains in width, where the stream is running it is about six feet in width and a foot in depth. Apart from the permanent sloughs, I do not think any of the land would be flooded. There is no water-power. The climate seems favourable and summer frosts were not observed. Poplar firewood is the only fuel. It is procured from the bluffs scattered about. No coal, stone quarries or economic minerals of any kind were observed. The various kinds of water fowl, prairie chicken and rabbits are plentiful, and there are probably also some deer.—*Thomas Drummond, D.T.S., 1903.*

Township 41.—The township can be reached by road from Wetaskiwin, Lacombe or Red Deer, but the roads are in poor condition. The soil is fairly good and is suitable either for farming or ranching. The township is prairie covered more or less thickly with scattered clumps of poplar, all of which is small. Quite a number of hay meadows are to be found and the high land grass is thick and luxuriant. The surface swamp water is fresh but the lakes are more or less alkaline. They are probably permanent. There are no streams in the township and no water-power. The climate seems suitable for farming and no summer frosts were observed. Poplar firewood can be obtained almost all over the township. No coal, stone quarries or minerals of economic value were discovered in the township. The various wild fowls, prairie chicken and rabbits are plentiful, and there are some deer also.—*Thomas Drummond, D.T.S., 1903.*

TOWNSHIPS WEST OF THE FOURTH MERIDIAN—RANGE 8.

Township 44.—This township is reached from either Wetaskiwin or Lacombe by means of good trails, but the greater part of the township lies to the east of Battle river, to reach which it would be necessary to cross the river. The soil is a light vegetable mould on sand or sandy loam subsoil, and in many places is only a few inches deep. This township is not suitable for anything except ranching, and is not very well adapted for that, as the grass is not very good. The surface consists of rolling prairie, covered more or less with scrubby poplar and scrub. The bush is scattered over the whole township, and is well distributed. The poplar ranges from 4 to 10 inches in diameter. There are some hay lands in this township, but they would only be available in a dry season. This year the water was two feet deep in the hay meadows. There is a large hay meadow on section 11, and also along Battle river. All the water in this township is fresh; the supply is permanent. There is a large lake in the northeast corner of the township, which also extends into the township to the north. Battle river is a stream about 2 chains wide and varies in depth from 6 to 10 feet. The current is about three miles an hour. The river is ten feet below the banks, so there is very little flooded land. There are two or three small rapids in the river, where the fall would be two or three feet, but outside of these there is no water-power. The climate is the same as along the railway. Several light snowfalls occurred while surveying this township (September). There is plenty of dead poplar to supply fuel for many years. It can be procured in any part of the township east of the river. There are no stone quarries and no minerals. Ducks, geese and prairie chicken abound, and bear and deer are seen occasionally.—*M. B. Weekes, D.L.S., 1903.*

Township 45.—This township can be reached from Wetaskiwin via Heatherbrae and Iron Creek trail, or by the government mail route to Iron creek and Battle river, thence northeasterly along Battle river to the southwest corner of the township. The trail between Wetaskiwin and Heatherbrae is in very bad condition, but from Wetaskiwin east the trail is not yet fenced, and with the exception of two or three small creeks the bad places can be avoided. The soil in the northeastern three-quarters of the township is generally good, averaging from 6 inches to 8 inches of black soil, with clay or sandy clay subsoil. The surface is rolling prairie, with scattered clumps or patches of willow and poplar scrub. There is some scattered poplar 4 inches to 6 inches in diameter through this portion of the township. There are no hay sloughs, but a good growth of high land grass. The township is suitable for farming and grazing. Battle river enters the township on the south boundary of section 5, running in an east or northeasterly direction through sections 5, 4, 3, 2, 11, 14, 13 and 24, which are badly broken by the river or other ravines and unfit for farming. The land southeast of the river is light and sandy and the tops of the ridges and ravines are very stony. The water in the township is generally fresh, the only permanent supply being the Battle river and numerous springs along the bottom of the river ravine and a lake on the south boundary of section 1. The river has an average width of about one and a half chains and a depth of four to six feet. Current about four miles an hour, and does not flood any land except in very high freshets. There is no water-power. Climate cold and wet. First summer frost on August 13. Fuel, small poplar and willows, scattered all through the township. No coal or lignite observed. No stone quarries and no minerals. Game, prairie chickens, ducks, geese, rabbits, deer and bear.—*Hugh McGrandle, D.L.S., 1904.*

Township 46.—We reached this township by trail from Wetaskiwin, Alberta, passing by way of Pipestone creek, Rosenroll, Demay lake and Round hill, which is on the Battleford and Edmonton trail. We followed this trail easterly till we reached township 48, range 13; here we took a southeasterly course, to township 46, range 12. We then travelled through township 46, ranges 12, 11, 10 and 9 to this township. The roads were bad, there being many mudholes and sloughs which could not be avoided. The soil is black loam and sandy loam, with a subsoil of clay. The loam is from 3 to

18 inches deep and produces good grass and considerable poplar, scrub and willow, and would produce good cereals and vegetables if the climate were favourable to their growth. The surface is rolling prairie with scattered poplar scrub and willow distributed over the township. The timber is scrubby and scattered. There are no meadow spots, but good grass may be cut for hay on nearly any part of the township where there is no scrub. The water is fresh in shallow sloughs and ponds. The supply is not permanent. There are no streams and the surface is not liable to be flooded. There are no rapids or falls and no water-power. The climate is mild and wet, with heavy rains and dews. Very little sunshine, but no heavy winds. There were late frosts about May 20 and early ones about September 15. Small poplar and willow is the only fuel to be had. No coal or lignite veins, stone quarries or minerals were found. Wild ducks and prairie chicken are found in abundance.—*R. J. Gordon, D.L.S., 1903.*

Township 47.—This township can be reached by the Battleford trail, which crosses township 48, range 8, from east to west, and also by another trail from Lacombe to Iron creek, and connecting with the Battleford trail on the west side of Buffalo coulee. The township is rolling and the soil is a black sandy loam on a subsoil of sand and sandy clay. Buffalo coulee, which crosses the township on sections 33, 34, 35 and 25, is a wide and deep coulee, in the bottom of which flows a good sized brook, having a depth of three and four feet. The township is well adapted for farming. The ponds and sloughs, as well as Buffalo creek, contain good water. Hay is scarce. The poplar and willow found in the numerous bluffs scattered throughout the township can only be used for fuel. The largest bluffs are on sections 5, 6, 7 and 8. There are no water-powers. The climate is good and there is no summer frost to hurt the crops, according to the settlers residing in the neighbourhood. There are no stone quarries, and no mineral has been found here during the progress of the survey. Game is not so abundant here as in the townships north and west of this one. Prairie wolves, badgers, rabbits and a few deer have been seen, also prairie chickens, partridges and a few ducks. The land is rolling and good roads can be made in all directions, the only difficult place to cross being Buffalo coulee, the bottom of which is very soft. There is a good crossing on the Battleford trail.—*J. B. Saint-Cyr, D.L.S., 1903.*

Township 48.—This township can be reached from either Edmonton or Wetaskiwin by means of the old Battleford trail, which runs through it. This trail is good in dry weather, but is poor in the spring or after continued rain. The soil is a black vegetable mould on a clay or clay loam subsoil. The soil is very rich, but the township as a whole is too rolling for good farm land. North of the trail it is heavy rolling and hilly. The whole township is covered with clumps of poplar and willow scrub. There is no timber to speak of, except a few small patches mixed with the scrub. The only timber is poplar. Hay can be cut around any of the several hundred sloughs in this townshp, but not in any great quantity in one place. The hay is of good quality. The water in this township is all fresh. In a dry season nearly all the sloughs and ponds would dry up. The only permanent water in the township is the lake in Buffalo coulee. There is no water-power. The climate is the same as in Edmonton district. A few inches of snow fell on May 18 and 19, but it only stayed on the ground a few days. There is a considerable amount of dead poplar in the township. Some of it is standing, but the greater part is lying down and partly burnt. On May 13 the whole country was burnt over. The fire came from the southwest, and is said to have been started by Indians. An immense amount of destruction to prairie chickens, ducks and geese was caused by this fire, as they were hatching out their eggs at the time. There are no stone quarries or minerals. Prairie chicken, ducks and geese abound; only occasionally a deer or bear is seen.—*M. B. Weekes, D.L.S., 1903.*

Township 49.—This township can be reached from either Edmonton or Wetaskiwin by means of the old Battleford trail which runs within two miles of the south

boundary of this township. This trail is good in the summer but is soft in the spring. The soil is a black vegetable mould on a clay and clay loam subsoil, and is very rich indeed. The country, however, is too rough to make good farming land, but is admirably suited for ranching. The surface of the township is hilly or rolling prairie with scrub and clumps of bush. There is a fine grove of poplar on section 19 and another on section 29, the timber being about 9 inches in diameter. There is also a fine poplar bush on section 13. Besides these, there are clumps of poplar suitable for building timber scattered over the township. The prairie grass at almost any point is long and heavy enough to make good hay. Besides this, slough hay can be cut around almost all the large sloughs and lakes. The water in this township is fresh; it is permanent and ample for all needs. There are no water-powers. The climate is the same as in the settled districts around Edmonton. Several inches of snow fell on May 23, but after that there were no frosts. There is a plenteous supply of dry poplar in almost every part of the township. There are no stone quarries and no minerals. Prairie chicken, ducks and geese are plentiful. Besides these I saw three black bears and two deer in the township.—*M. B. Weeks, D.L.S., 1903.*

Township 50.—This township is on the trail from either Edmonton or Wetaskiwin to Battleford, from either of which places it can easily be reached. The trail is a good one. The soil is a black vegetable mould on a clay or clay loam subsoil. There are a few sections where the subsoil is sandy loam. The north half of this township is good farming land, but the south half is somewhat too broken to make first-class farming land. The south half would be suitable for cattle. The prairie is partly covered with clumps of poplar and willow scrub, but there is no timber in the township, except along Vermilion river and in some of the coulees running into it, and even there, there is not very much poplar, and runs up to 12 inches in diameter. There is plenty of hay in the bottom lands along Vermilion river. It is of good quality and in large quantities. All the ponds and lakes in the township are fresh, except the lake in Grizzly Bear coulee which is slightly alkaline. The water supply is permanent. Vermilion river is a stream about one chain wide and from 6 to 8 feet deep with a current of three miles an hour. The water is of good quality but carries considerable sediment in it. There is no water-power. The climate is the same as in the Edmonton district. No frosts were encountered while I was in the township (July-August). Fuel is scarce but a limited supply may be had along the Vermilion. This is about the only firewood in the township. There are no stone quarries and no minerals. Prairie chicken, ducks and geese abound. No other game was seen. The north half of this township is about the same as the north half of township 50, range 7, and is the best land I saw during the summer.—*M. B. Weekes, D.L.S., 1903.*

Township 56.—(North and east outlines.)—The north boundary is very hilly, some of the hills are high and steep. The east part of the township is prairie broken with small bluffs, hills and sloughs. The western half of it is covered with scrub and the extreme western sections with poplar woods. There is a range of high hills rising on the eastern boundary just north of the Saskatchewan (300 or 400 feet high) running northwesterly past the north boundary and spreading westerly in a succession of ridges. Hay is found only on the eastern portion of this township and firewood is abundant all over. Building timber may be found on the west side and along the river. The lake at the northwest corner is apparently very deep and covers 1,200 or 1,500 acres. There is also a lake of about 160 acres near the boundary of sections 26 and 27. The soil on the eastern sections is a deep black loam averaging 9 or 10 inches, but in the northwest it becomes shallow not averaging above 3 or 4 inches. I saw no coal, lignite, stone quarries, minerals or water-powers through the foregoing townships. Game is not abundant, a few prairie chickens, wild ducks, hares and deer were seen.—*J. J. Dalton, D.T.S., 1903.*

TOWNSHIPS WEST OF THE FOURTH MERIDIAN.

Range 9.

Township 2.—This township is in part a rolling prairie, but the greater part is hilly and broken by numerous deep coulees running into Milk river, which flows eastwards across the township. The part lying south of the river is especially rough and broken by ravines or coulees extending from near Sweet Grass hills or Three Buttes lying south of the International boundary. The township is well suited for grazing purposes. A rancher is located on section 20 along the river, where bush is found in places. The soil is a clay loam of second quality.—*E. J. Rainboth, D.L.S., 1902.*

Township 38.—The main trail to Red Deer, Blackfalds, and in fact to any point on the railroad north of Red Deer, crosses the most nothern sections of this township. There is also about the middle of the township a track going to Conor's ranch and east across Nose hills. This township is very hilly, mostly so on sections 9, 10, 11, 14, 15, 16. The western part contains a number of small lakes and sloughs, in which the water is alkaline, with the exception of a few small sloughs containing rain water; there is very little good water in the township. The soil is fair, being a good coat of black loam with a clay subsoil. The fuel from the timbered part of the township would not last more than a couple of years, but it is reported that coal can be procured easily. No stone quarries or minerals were found in the township. Conors & Company, ranchers, with 3,000 head of cattle, have made their headquarters on section 15 of this township. The land is good farming land, but in the middle part especially the irregularities of the surface might cause a delay of some years in the settling of the township unless a railroad happens to pass near by.—*Geo. P. Roy, D.L.S., 1903.*

Township 39.—This township can be reached by the ranchers' trail which passes through the northern row of sections of township 38, range 9. The soil is either a good sandy or black loam over a clay subsoil. This is a farming country. The western part is easy rolling prairie, with scattered bluffs of poplar. The eastern part is rough and hilly, and on sections 10 and 11 there is quite a quantity of willow brush and small poplar. The water in the lakes is alkaline; even the water in the sloughs has a taste of alkali. In a wet season hay is plentiful all over the township. There are no streams in the township. Wood for fuel would not last six months. I have seen neither stone quarries nor minerals of any kind. Ducks and prairie chicken are the only game. There are no settlers or ranchers in this township.—*Geo. P. Roy, D.L.S., 1903.*

Township 40.—The bulk of the township being south of Battle river the best route to reach the township is from Lacombe, but the trail is in bad shape. The soil is fairly good as a whole, but owing to the extremely broken character of the whole township it has been booked as class three. The hill tops are covered with boulders. The township is too rough for farming land, but the grass is excellent, and it is a good sheep country. The surface is open prairie, with scattered bluffs of poplar and willow mainly on the north side of the hills. The timber is all small, and consists of poplar, with a few scattered spruce along the valley of Battle river. The smamp water is fresh, but the permanent lakes are alkaline. The supply is plentiful and permanent. The only stream is Battle river, which runs through the northwest corner of the township. Its width is one-half to two chains and depth three to ten feet. It runs in a deep and wide valley, and only small portions of the bottom land would be flooded, and that only at extreme high water in spring. The current runs about one and a half miles per hour. There are no falls, and the fall in the rapids is very slight. I should say that water-power could not be developed by dams. The climate is pleasant, but the rainfall this season was heavy. We had cold weather, for it was late in the fall when the survey was made, but judging from the adjacent townships I should say that there were no summer frosts. Poplar is the only available fuel, and it is scattered over the whole township. Indications of coal are to be found in the cut banks of Battle river, but no actual seams were discovered. No rock in place was discovered, but numerous boulders are to be found scattered over the surface. Indications of clay iron stone were observed

along the cut banks of Battle river, but not, I think, in sufficient quantity to be of economic value. There are a few deer along the river and vicinity, and ducks, geese, sandhill cranes, swans and prairie chickens are plentiful.—*Thomas Drummond, D.T.S., 1903.*

Township 41.—The township can be reached by road from Red Deer, Lacombe or Wetaskiwin. These roads are in bad condition. The soil is a black loam with a gravel or clay subsoil. It is booked as second class upon the whole. It is suitable, I consider, either for ranching or farming, especially the former, as the township is very much broken. The surface is rough and uneven; it is covered more or less with scattered clumps of poplar and willow. The timber is poplar suitable only for firewood, and it is practically scattered over the whole township. A limited amount of poplar building timber can be obtained along the valley of Battle river. There are many small sloughs and ponds, furnishing a limited amount of hay, but large hay meadows are scarce. The sloughs contain fresh water, but the lakes are more or less alkaline. The water, I judge, is permanent. The township is traversed by Battle river, which is from one and a half to two chains in width. It has a depth of three to ten feet and a current of about one-half to two miles per hour. Some of the bottom land in the valley is liable to be flooded to a depth of probably two feet for a short time. There are several permanent springs of good water in gulches running into the river. Water-power cannot be developed on Battle river. The climate seems suitable for farming, and no summer frosts were observed. The only available fuel is poplar timber. No minerals of economic value were observed. Wild fowl of all kinds are plentiful, as are prairie chickens, and there are also quite a number of deer.—*Thomas Drummond, D.T.S., 1903.*

Township 44.—This township can be reached from either Wetaskiwin or Lacombe; fairly good trails from both places run close to the township. The soil is a black loam on a sand or sandy loam subsoil. In the southern part the country consists chiefly of sand hills. The only purpose for which this township is adapted is ranching. The greater part of the township is hilly, but only a few of the hills are over 50 feet high. The southeast part of the township is gently rolling prairie. There is no timber in the township, except one or two small clumps of poplar around the small lakes. There is not enough, however, to supply settlers with building timber. There is considerable hay land around the lakes in the northwest part of the township. It is of good quality. There is only one lake of over 20 acres, and its waters are fresh. I have named it Delusion lake. The water in the small ponds is also fresh. With the exception of Delusion lake and one or two small lakes the water in this township is only temporary. There are no water-powers. I did not reach this township until September, but from then on we had frosts nearly every night. There is no fuel, but it can be procured from the township to the east, across Battle river. There are no stone quarries or minerals. Prairie chicken, ducks, geese, deer and foxes were seen.—*M. B. Weekes, D.L.S., 1903.*

Township 45.—This township can be reached by the route given in report of township 45, range 14, west of the fourth meridian, or by government mail route from Lacombe via depot No. 2, in township 43, range 9, west of the fourth meridian, to township 45, range 8, thence west to this township. In the two northern tiers of sections the soil is generally good, though of no great depth, consisting of an average of five inches of black soil with clay or clay loam subsoil. In the eastern and southeastern sections, comprising about one-third of the area of the township, the soil is very light, with sand subsoil, and in ordinary seasons would be worthless for farming purposes. The remainder of the township is very stony and broken. As a whole, it is only fit for grazing. The surface is generally rolling or undulating prairie, with scattered clumps of small poplar and willows, but the western half is very hilly and broken by numerous gullies and ravines, while the whole township is divided irregularly by Grattan creek coulee, which crosses it from the southwest quarter of section 30 to the northeast quar-

ter of section 13. The only timber, with the exception of some small bluffs of young poplar along Grattan creek coulee, is in the northern tier of sections, and consists of poplar from four to six inches in diameter, of which about one-third is fire-killed. A small quantity of coarse hay might be cut in Grattan creek coulee, but as a rule the bottom is too stony and boggy to allow of a mower being used; there is no upland hay. There is no permanent supply of fresh water in the township, Grattan creek and the numerous small lakes and ponds being all strongly alkaline, and three small creeks which run into Grattan creek would probably disappear in a dry season. There is no water-power. General indications are that the climate is cold and wet; the first summer frost was on August 13. The only fuel obtainable is poplar and willows, principally in the northern part of the township and Grattan creek coulee. There is no coal or lignite and no stone quarries or minerals. Prairie chickens, duck, geese and deer are to be found.—*Hugh McGrandle, D.L.S., 1903.*

Township 46.—This township was reached by trail from Wetaskiwin, Alberta, passing Pipestone creek, Rosenroll, Demay lake and Round hill on the Battleford and Edmonton trail. We followed this trail till we reached township 48, range 13. We then took a southeasterly course across the country till township 46, range 12, was reached. Then we travelled easterly through ranges 12, 11 and 10 to township 46, range 9. The roads were bad, there being many mudholes and sloughs that could not be avoided. The soil is sandy loam and produces good short grass and some scrub poplar and willow. The surface is rolling prairie with scattered poplar and willow except in the north central and northeast parts which are open prairie. The poplar is small ranging from 1 to 8 inches in diameter. The willow is small also. There is no hay, the grass being too short for that purpose. The water is fresh in shallow sloughs and the supply is not permanent. There are no streams and the surface is not liable to be flooded. There is no water-power. The climate is mild and wet, there being frequent heavy rains and dew. There were late frosts about May 20, and early ones about September 15. Scrub poplar and willow is the only fuel obtainable. They are scattered over the township and the surrounding country. There are no coal or lignite veins. No stone quarries or minerals were found. Wild ducks and prairie chicken are found in abundance. This township is good for grazing purposes and may be used for mixed farming.—*R. J. Gordon, D.L.S., 1903.*

Township 47.—This township can be reached by the Battleford trail which passes in township 48, range 9, or by the trail from Lacombe to Vermilion river. This last trail crosses township 47, range 8 through the centre in a northwest and southeast direction; both of them are very good. The soil is chiefly composed of black loam and sandy loam resting on a subsoil of sandy clay and is well adapted for cultivation. Settlers will make a judicious choice in taking a farm here. This township is hilly, with the exception of the south and eastern portion, which is undulating. The surface is prairie and bluffs broken here and there by ponds, hills and sloughs. The highest hills are found close to the northeast corner of the township. Good water is plentiful here and good hay is found in the numerous sloughs scattered all through the township. There are no large lakes nor streams of any description. The bluffs contain poplar and willow, fit only for fuel, but in sufficient quantity for many years to come. There is no stone quarry and no trace of mineral has been seen during the progress of the work in this township. Game consists of prairie wolf, badger, foxes, rabbits and a few deer. Prairie chickens and a few ducks, cranes and wild geese have also been seen. I have been told by settlers living northwest of here that the climate is pretty fair and that there are no summer frosts. —*J. B. Saint-Cyr, D.L.S., 1903.*

Township 48.—The township lies on the Battleford-Wetaskiwin trail and is reached from Edmonton by way of Vegreville, thence to McLeans, where the Battleford trail is joined. The eastern portion of the trail is good, while the main trail to

Wetaskiwin is considerably cut up owing to the amount of traffic, and that between Vegreville and Edmonton is still worse. In dry seasons both would be excellent and either would make a good road if culverts were put in at the various creeks and watercourses. The soil is excellent, being generally a deep rich black loam with sand and clay subsoils, but owing to the rough nature of the surface, and the numerous ponds is for the most part suitable for grazing only. The southeast part of the township is rolling to hilly prairie with patches of willow and poplar scrub, while the balance is about half covered with poplar timber and scrub. On the west half of the township are several bunches of timber suitable for building. It is all poplar and ranges from 4 to 9 inches in diameter. Prairie fires, however, destroyed a great part of the growing trees in May of this year. There is no hay in the township worthy of note, although grass is found everywhere from 10 to 18 inches high, but the rough nature of the surface renders it useless as hay. The water is all alkaline but not sufficiently so to make it unfit for use. The creek in Buffalo coulee runs only in the spring and after a heavy rain and is not as good as water taken from many of the sloughs and ponds. Some of the ponds are deep and never dry up and plenty of water can be found at any time on all parts of the township. The land around the ponds in a wet season is liable to flooding, and many so-called lakes in a dry season dry up to a basin with one or more small ponds. There are no water-powers in the township. The climate is that of northern Alberta. A slight frost about June 15th was the only one observed after the middle of May. A little snow fell on May 19 and 20. Wood for fuel may be obtained in the township, and as far as I am aware is the only fuel obtainable. There is sufficient in the township to supply the settlers for a few years, and if properly protected from fire, for many years. There is no stone quarry in the township and no minerals, as far as I could observe. Geese, ducks and prairie chicken abound, and a few jumping deer were seen previous to the fire, but subsequently very little game of any kind was seen. The hills in the township are very abrupt and generally every depression is a slough or becomes one in a wet season. Evidence of the waters having been much higher were observed and the notes as furnished by the department on the outlines would point to the fact that the ponds are extremely low this season. However, in a few cases posts, pits, &c., built by the outline surveyor were found now under water.—*C. C. Fairchild, D.L.S., 1903.*

Township 49.—This township lies between the trails from Edmonton to Battleford, and Wetaskiwin to Battleford. The latter is generally in the better condition, but is not so much used as the former. The soil consists of heavy black loam with clay subsoil generally and would rank first class if the surface was not so broken. It is suitable for mixed farming. Buffalo coulee runs from the south boundary of section 2 northwesterly and leaves the township on the west boundary of section 30. North and east of the coulee the country is rolling with small ponds and sloughs and patches of scrub and poplar. South and west of the coulee the surface is more broken and while the hills are not over 50 feet on an average, they are very steep and the north slope usually covered with scrub. Complete field notes showing every hill and hollow on the line would be confusing and it is impossible to sketch the surface on either side of the line as there is no regularity to the hills or hollows except Buffalo coulee. There is more or less scrub and small poplar over the entire township. In the southwest corner are found some clumps large enough for building. The water is generally fresh and many of the small ponds are apparently permanent. Buffalo coulee drains south from section 21, while the water from section 20 goes northwest. There are no streams and no flooding of lands. No falls, rapids or water-power. The climate is that of northern Alberta. Frost about June 15 was the only one noticed and it did little or no damage. Wood is the only fuel and it can be obtained in limited quantities on any section in the township. There is no coal or lignite, no stone quarries and no minerals as far as I saw. Ducks, chicken, geese and an occasional deer were the only

game seen. Probably half the surface of the township is covered with light scrub, such as buffalo willow, saskatoon bushes, rose bushes, &c.—*C. C. Fairchild, D.L.S., 1903.*

Township 50.—The old Battleford-Edmonton trail passes through the northeast part of the township, and the Canadian Northern Railway surveyors have a trail across the township which reaches Edmonton or Wetaskiwin via Vegreville. All routes are bad in a wet year and all are good in a dry season. The soil north of Birch creek is clay loam in the hollows with light sand hills, and in places blow sand. South of Birch creek and north of the south cross line is No. 1 soil and not too rough, while that south of said cross line is just as good but rather hilly. In this township is the best land I saw in any of the twelve surveyed by me. It is well adapted for farming. The surface is generally prairie, although a block of probably 40 acres of cottonwood and birch averaging 9 inches in diameter is found on sections 28 and 29. This timber is not fire-killed, being surrounded by sand hills and sloughs. The other timber in the township is small and comparatively worthless, unless it be a few clumps along Birch creek. There are good hay marshes along this creek, but this year they were all flooded. The grass is common marsh grass, and is found on sections 19, 20 and 21, in all, probably 60 acres. The water is fresh, that of Birch creek being particularly good. This creek will average 8 feet wide, 1 foot deep, with a 3-mile an hour current. The hay lands above mentioned are liable to be flooded to a depth of a few inches. A small water-power might be obtained from this creek at the north end of the township, as the banks are high and the current swift, and a dam could be constructed to give a considerable head. The climate is that of Edmonton neighbourhood. No frosts were noted while in the township (June-July). Wood is the only fuel in the township, and that is in limited quantity. Vermilion river would afford a way of bringing in more when required. There is no coal or lignite and no stone quarries. There are no minerals of economic value in the township as far as I know. Chicken and duck were seen and a few deer. The Canadian Northern Railway survey runs through the township, and one squatter was found on the northeast quarter of section 36.—*C. C. Fairchild, D.L.S., 1903.*

Township 51.—The route for reaching this township is by a trail from Whitford lake or by a new trail along the surveyed line of railway from Sickman hill and Vegreville. This trail is fairly good as far as Vegreville, but from there to Edmonton it is very bad. The trail by Whitford lake is good as far as Whitford post office, but from there to Edmonton it is very bad. The nature of the soil is a black loam from 2 to 15 inches in depth, with a subsoil of clay in places and sand and gravel. I do not think the subsoil is first class. The soil supports a heavy growth of prairie grass, very suitable for cattle, and if broken up and cultivated would grow good crops of grain and roots. The surface of this township might be called prairie, timbered and scrubby, as prairie timber and scrub can be found on almost every section; it is rolling, and in places hilly. The south side of Vermilion river is more open than the part lying to the north. To the north the land is more hilly and rough, with a heavier growth of poplar and scrub. The valley along the Vermilion is the best location for hay in dry seasons; two tons and over per acre could be cut when the summer is suitable and dry. The quality is slough or wild grass. The water found in all the ponds, lakes and sloughs was good; there is surface water from rain and snow. The Vermilion river water cannot be called good, as it is slightly alkaline. The climate is identical with that of Edmonton; no summer frosts from June 1 to August 30, 1903. The kind of fuel most readily available is poplar, which can be found scattered all over the township. No stone quarries were found, but boulders can be found on some of the hills and in the beds of creeks. I found no minerals of economic value in the township. The game to be found is rabbits, prairie chicken, and in the summer time ducks and geese are numerous. Poplar timber can be found in size up to 12 inches on the northeast quarter

section 36. Brulé and windfalls on southeast quarter section 24; poplar on southeast quarter section 5. On sections 11, 12, 13, 26, 27, 33, 34, 30 and 19 poplar can be found from 4 to 8 inches.—*Robert W. Lendrum, D.L.S., 1903.*

Township 52.—The best route for reaching this township is by a trail from Whitford lake. It is fairly good in dry weather. The soil is from two inches to fifteen inches in depth, a black loam with a clay subsoil in the north, and a sand and gravel subsoil in the south. The surface to the north and east is rough and hilly, and in places broken; to the south it is high rolling. There is a large lake on the township boundary on sections 13 and 24 and another on sections 26 and 27, both of which I traversed. This township is suitable for mixed farming, the land to the south and west is prairie, with some scrub and brush; to the north and east the scrub is thicker; poplar trees in clumps and scattered on almost every section. Hay can be cut in small quantities around the sloughs and lakes; no meadows of any great extent were found except on the flats immediately along Vermilion river. Water is plentiful and that found in the creeks, lakes and ponds, good and I believe the supply permanent. No water-powers were found. The climate is almost the same as around Edmonton; no summer frosts between May 20 and August 23. The kind of fuel most readily available is poplar wood, which can be had on every section. The game found here is prairie chicken, ducks and geese. No rock was found but boulders can be got on almost every hill top.—*R. W. Lendrum, D.L.S., 1903.*

Township 57.—This township lies a few miles south of the main trail from Red Deer to Battleford and can be easily reached. The soil is mostly a black sandy loam from 6 to 15 inches in depth and ranks as first class. The soil in the northeastern corner is a hard clay in a plateau through which Ribstone creek runs, and is only ranked as third class land. Part of the surface is heavy rolling prairie very rough and uneven, rising into very high hills called Nose hills, and cut by numerous deep ravines, well wooded. The timber is poplar and balm of Gilead 6 to 10 inches in diameter and is only suitable for light building purposes for fuel. Good hay is found at the foot of the ravines. The grass is very long and abundant. Water is scarce, the Ribstone being the only water supply in the township. Plenty of timber for fuel purposes is found in the numerous wooded ravines. No evidences of coal or lignite veins were discovered. There are no waterfalls or rapids in the township. No minerals or stone quarries were found. Antelope were the only game noticed.—*Joseph A. Carbert, D.L.S., 1903.*

Range 10.

Township 2.—This township is well watered by Milk river which flows eastwards across the northern part and is more or less broken by coulees running into Milk river along the valley of which and in the numerous coulees there is good shelter for stock. The township is best suited for ranching. The quality of the grass is good and the soil is from second to third class.—*E. J. Rainboth, D.L.S., 1903.*

Township 37.—This township lies only a few miles south of the main trail running from Red Deer to Battleford. The soil is a rich black clay loam with a clay subsoil, and with the exception of a few sections of second class land, is all first class. Vegetation is rich. The surface is open rolling prairie in the westerly half and hilly in the easterly portion. There is no timber whatever in the township. A limited quantity of hay is found around the hay sloughs. Good water is scarce. Fair water is found in the grassy sloughs and in a stream which runs easterly through the township and enters Ribstone creek at the foot of the Nose hills. There are no waterfalls or rapids in the township. Wood for fuel is very scarce, but can be had in the adjoining township east in the Nose hills. No coal or lignite veins were found, and no minerals or stone quarries. Antelope from the Nose hills were the only game seen.—*Joseph A. Carbert, D.L.S., 1903.*

TOWNSHIPS WEST OF THE FOURTH MERIDIAN—RANGE 10.

Township 38.—The rancher's trail to Blackfalds or points on the railway north of Red Deer crosses the northern part of this township. The surface is mostly easy rolling, with a slope to the south. It contains a fair amount of small poplar and brush in the north half. The soil is a sandy or black loam on a clay subsoil. There are not a great many sloughs in the township except in the south part, and hay would be scarce in dry seasons. The water in the small lakes in the township is alkaline, but is fresh in most of the sloughs. There are no streams in the township. Fuel is scarce as far as I could judge. I know of no stone quarries, nor did I see any kind of minerals. Prairie chicken and duck are the only game, with geese in the fall.—*Geo. P. Roy, D.L.S., 1903.*

Township 41.—The township can be reached by road from Wetaskiwin, Lacombe or Red Deer, but the road is not in good order. The soil is fairly good upon the whole, but the township is much broken by hills, ravines and by the valley of Battle river. It is suitable for ranching. The township is prairie, more or less covered with scattered clumps of poplar and willow. The timber is poplar, which is small, except along the river valley, where a limited amount of building timber can be obtained. The township is cut up by wide coulees which contain lakes and swamps, affording a fair growth of good hay. The lakes are more or less alkaline, good for stock but not for man. They are permanent. There are several good springs in ravines running into Battle river. Battle river itself affords a never failing supply of good water. It is one and a half to two chains in width and three to ten feet deep, and has a current of about one and a half miles an hour. Some of the low flats along the river valley would be flooded to a depth of about one foot. The river does not afford any available water-power. Poplar firewood can be obtained from the bluffs scattered over the township. No coal seams were located, nor were any economic minerals or stone quarries observed. Wild fowl and prairie chickens are plentiful, also rabbits, and quite a number of deer were also seen.—*Thomas Drummond, D.T.S., 1903.*

Township 45.—This township can be reached by the route given in the report for township 45, range 11, west of the fourth meridian. In the west and centre the soil is black loam with clay or clay loam subsoil. In the eastern part there is a great deal of stone and the subsoil is gravelly. There are occasional quarter sections suitable for mixed farming, but the greater part is only fit for grazing. The surface is principally prairie, with scattered bluffs of poplar and willows, and is very rolling, and broken by numerous ravines and gullies. The only timber consists of poplar 2 inches to 4 inches in diameter, and willows occurring in scattered bluffs along the south sides of ravines, principally in the north half of the township. There are occasional trees from 8 to 10 inches in diameter in the northern portion. There is a hay slough of about 10 acres in extent in section 34, one of half the size in section 32, and there are also a number of small sloughs where coarse hay could be cut in dry seasons. There is no permanent supply of good water; the numerous small ponds and lakes are strongly alkaline. Two small springs were found on section 10 and one in section 11, but the water was bad. Owing to the abundant rainfall there is plenty of fresh water to be had in the sloughs, but in a dry season there would be none. There are no streams in this township. The climate is cold and wet, but no frosts so far (July). The only fuel is poplar and willow. No coal or lignite was found, or stone quarries or minerals. Prairie chicken, duck and rabbits are found.—*Hugh McGrandle, D.L.S., 1903.*

Township 46.—We reached this township by way of Wetaskiwin, thence by trail, passing Pipestone creek, Rosenroll, Stony creek and Round hill, on the Battleford and Edmonton trail in township 48. We followed this trail to range 13. We then travelled southeasterly to township 46, range 12, thence easterly through township 46, ranges 12 and 11, to range 10. The roads were very bad, as the trail crosses many sloughs which cannot be avoided. The soil is black loam from six inches to two feet deep, with a subsoil of clay, producing a good growth of prairie grass. The surface is rolling to

hilly prairie with willows and small poplar scattered throughout the township. There is none large enough for building purposes. Good hay may be cut from the north central part of the township in the vicinity of Craven lake, where the surface is undulating and small willow is the only brush. There is good hay in other parts, but the scrub is thicker and the surface rougher. There is some blue grass, but bunch grass predominates. There are many fresh water ponds, supplied by the almost constant rainfall. Surface wells may be obtained. There are no streams, and the surface is not liable to be flooded. The climate is mild in temperature and very wet, as it rains nearly every day and the dew is heavy. There were late frosts about May 25 and early ones about September 20. The only fuel to be had is small poplar and willow, scattered over the township. There were no indications of coal or lignite. No quarries or minerals were discovered. Ducks, geese and prairie chickens exist in abundance. This township is best suited for stock-raising.—*R. J. Gordon, D.L.S., 1903.*

Township 47.—This township can be reached by the Battleford trail, passing some four miles north of the south boundary of township 48, range 11. The soil is composed of black loam, varying in depth from 4 to 18 inches, resting on a subsoil of sandy clay and hard clay. Though the soil is a little stony in some places, it can be cultivated profitably. This township is somewhat hilly here and there. There are three remarkable hills in the central portion of this townshp, the north slopes of which are covered with poplar and willows. The poplar and willow bluffs contain wood that is only good for fuel. Good hay is plentiful in every slough and marsh. Grass grows abundantly on the side hills. Good water can be had in nearly every pond and slough. There is no stream of any description in this township, no stone quarries, and I did not see any traces of mineral during the progress of the work. There are only three lakes of any size in the township, viz.: Markus lake, lake No. 1 and lake No. 2. Prairie wolves, foxes, badgers and rabbits seem to be plentiful here. As to the feathered game, there are ducks of different kinds, wild geese, cranes, prairie chickens and partridges. Roads can be made with comparatively little cost in all directions through this township. Settlers will find here everything to meet their requirements.—*J. B. Saint-Cyr, D.L.S., 1903.*

Township 48.—The township is intersected by the Battleford-Wetaskiwin trail, which is good in a dry season, but becomes almost impassable in a wet season. Edmonton is reached by way of Vegreville and Fort Saskatchewan, but this trail is both longer and worse than the Wetaskiwin trail. The soil is generally a heavy black loam with a clay subsoil, and would rank as No. 1 for agricultural purposes were it not for the hilly nature of the country and the numerous ponds. On this account I have graded it as No. 2 for the greater part. It is, however, especially adapted for grazing, the rolling surface and small patches of scrub and brush giving protection to stock. The timber or bush in the township is generally small, and with the exception of the east one-third of the township, there is practically no timber, and that in the eastern part of the township is small, averaging four inches in diameter, and being found in small patches without any continuity. To sketch the landscape is a practical impossibility, as the hollows are so deep and irregular that only a small area is visible from any one point. There is no hay land in the township, but this season an excellent crop of hay, pea vine, &c., could be cut on the hills, but the area would be limited by the small scrub, ponds, &c. The only water in the township is in the ponds, and any of these that are apparently permanent are more or less alkaline. There are no streams, falls or rapids. The ponds at the time of survey were very full, but flooding from them affects only a small area. The climate is the northern Alberta climate. A snowfall on May 19 and 20 and a slight frost on June 15 were the only unpleasant features noted. Wood is the only fuel available, and it can be obtained in small quantities generally throughout the neighbourhood. There is no coal in the township, no stone quarries, and no minerals as far as I could ascertain. Chicken, duck and a few geese

were seen in the township. The prairie fire early in May destroyed a considerable quantity of bush in the township, as well as the nests of the chicken and duck. In fact, very few chicken survived the fire and thousands of eggs must have been burnt. There are no squatters in the township.—*C. C. Fairchild, D.L.S., 1903.*

Township 49.—The township lies between the Battleford-Edmonton and the Battleford-Wetaskiwin trails and is reached from either trail without difficulty. The trail from Wetaskiwin is the better of the two, but both are good in a dry year, but almost impassable in a wet year. The soil is a heavy black loam with clay subsoil, but owing to the broken surface and prevalence of ponds, is better suited for grazing than farming. The surface is prairie with some scrub, which is thicker along the east side where some 4-inch poplar is found. Very little of this, however, would do for building. There is no hay in the township except the prairie grass which grows luxuriantly on all parts of the township not covered with scrub or water. The water in the lakes and ponds is good. There are no creeks and no flooding of lands or water-powers. The climate is similar to that of Edmonton. There was one light frost in June. Wood is the only fuel and it is found in small quantities on all the surrounding prairie. There are no coal veins, stone quarries or minerals. Prairie chicken, ducks and geese were the only game seen. The lakes and ponds were very high at the time of survey and several ponds shown in field notes would doubtless dry up in a dry year, but a number of the ponds are, I believe, permanent. There are no settlers in the township.—*C. C. Fairchild, D.L.S., 1903.*

Township 50.—This township is reached either from Edmonton or Strathcona or Wetaskiwin by way of Vegreville. The Canadian Northern Railway surveyors have a supply trail from Vegreville to the township, which is good. The soil is somewhat sandy in the centre but is better both north and south. It is suitable for mixed farming but is rated generally No. 2 for this purpose. The surface is rolling prairie with scrub. The north and south ends are rather scrubby, the north being about half covered with poplar and willow scrub averaging 12 feet in height. There is little growing timber in the township, but considerable brulé scattered through the scrub. Hay can be cut in limited quantities along the valley of Birch creek. There is an abundant supply of excellent water both in the lakes and Birch creek. Birch creek is about 6 feet wide by 2 feet deep, and flows for the most part through a flat marshy valley. The current is about three miles an hour. The marshes are liable to flooding, but are apparently never dry, and the effect would be hardly noticeable. There is no chance for water-power development. There are no summer frosts, the climate being that of Edmonton district. Dry poplar is the only fuel available, there being enough within the township for settlers' needs for a few years. There are no coal or lignite veins in the township and no stone quarries. No economic minerals were found. Chicken, ducks and a few deer were seen in the township. Birch creek enters the township near the northwest corner and flows out about the centre of the east sid. A Canadian Northern Railway line is located south of and generally parallel to the creek and there is a trail running alongside the survey line. There are no settlers in the township and no stock ranging over it.—*C. C. Fairchild, D.L.S., 1903.*

Township 51.—The route to this township is from Edmonton to Fort Saskatchewan, thence to Vegreville and from there by trail to this township. The trail from Fort Saskatchewan to Vegreville is very badly cut up. From Vegreville to this township, it is fairly good, along the trail made by the Canadian Pacific Railway surveyors. The soil is a sandy loam from one to eighteen inches in depth. In the north part of the township, the subsoil is clay or sandy clay, in the south part the subsoil is sand or gravel. The surface is high rolling or hilly in the east and southwest portions and rolling and swampy towards the middle, covered with willow and poplar scrub and brush, with occasional openings or bare prairie. On sections 19, 29, 30, 31 and 32, there are poplar trees averaging about five inches, suitable for building and fences.

Hay is found around sloughs on sections 14, 15, 18, 19, 20, 22 and 29, and consists of slough grass, the quantity is very uncertain, varying as the year is wet or dry. The water found in the sloughs and ponds was fairly good, but a little alkaline. The supply in wet seasons is abundant, but I am inclined to think that in dry seasons, the supply of surface water would be limited. There would be no great difficulty in getting water by means of wells in most places. I did not discover any water-powers. The climatic conditions of this township are almost similar to those of Edmonton or Strathcona. I could discover no difference. Snow fell to the depth of six inches on the 21st day of May, 1903, and snow to the depth of four inches on October 2, but both these snows disappeared in the course of one day and there was fine weather afterwards. A killing frost came on the 25th day of August, killing off potatoes, oats, wheat, &c. The fuel most readily available is poplar, which can be found on almost every section. The supply would be sufficient for a few years only. There is a vein of lignite on the north side of Vermilion river on section 7. There are no stone quarries to be found in this township, but boulders are to be found on many of the hill tops. The kinds of game found were prairie chickens, partridges and ducks and a few rabbits.—*R. W. Lendrum, D.L.S., 1903.*

Township 52.—The surface of this township is rough and hilly and in places broken, overgrown with willow and poplar scrub and brush, with openings here and there. The route for reaching it is by Vegreville, thence across the country by Sickman hill to the north of Birch lake, to Birch creek across a muskeg at Birch creek, which is dangerous for teams, to township 51, range 10. The soil is a black loam on a clay subsoil. The surface soil is from three to fifteen inches in depth. The township is more suitable for grazing purposes than cultivation on account of its hilly and broken surface. There are two groves of spruce trees, one on sections 13 and 14 and another on sections 22 and 23; trees from 6 to 18 inches in diameter, suitable for sawn lumber; I estimate about three hundred thousand feet board measure in all of spruce. There is an abundance of poplar trees in groves and scattered, suitable for building purposes, fencing and fuel. Hay can be cut in small quantities in many of the sloughs. I discovered no extensive meadows. The water in this township I consider amply sufficient, and I found it good and sweet, and I think permanent. Vermilion river enters this township on section 34, crosses sections 27, 26, 23, 24, and leaves it on section 13. It is a stream of from 80 to 100 links in width while in full flow, and a depth of from 6 to 8 feet, with a current of about 2 miles an hour. I found the water to be good. This is a very crooked stream, and along the bends and turns are flats where hay can be cut. Upon this stream I discovered no rapids suitable for mill dams. The climate I consider similar to that of Edmonton district. The fuel most readily available is poplar, which can be procured in every section. I found rock in place on the east boundary of section 14; it is a red sandstone, and boulders can be found on almost every hill. A thin bed or vein of lignite is exposed on the bank of the Vermilion on sections 13 and 18. The game to be found is ducks, prairie chicken and rabbits—*R. W. Lendrum, D.L.S., 1903.*

Range 11.

Township 2.—This township is well watered by Milk river, and there is also a creek emptying into the latter and flowing through Deadhorse coulee, which is also called the Old river bed coulee. The river flows across the middle of the township eastwards. Along the river there is good shelter for stock grazing, for which the country is best suited. The grass is of an excellent quality, and the soil is second class.—*E. J. Rainboth, D.L.S., 1902.*

Township 38.—This township is easily reached, as the main trail from Red Deer to Battleford passes through the township from west to east. The soil in the upper

one-third of township is a black sandy loam with a clay subsoil, and is first class land, good for farming purposes. The lower two-thirds is a much poorer quality; some black loam mixed with alkali, and balance sandy, and is only fit for grazing purposes, being third class. The surface is open rolling prairie in the upper one-third, and a low flat prairie in the lower two-thirds of the township, and there is no timber whatever. There is an abundance of good hay to be found around the lake which is situated in the lower two-thirds of the township, and in the hay sloughs. Water is scarce, and is found only in the sloughs, and in a stream which runs from Meadow lake northerly in Battle river. The water in Meadow lake is alkaline, and is from 1 to 6 feet deep. There are no water-powers, falls or rapids in the township, and no wood for fuel, but wood can be obtained in the township north along Battle river. No lignite or coal veins were discovered. No stone quarries or minerals were found in the township.—*Joseph A. Carbert, D.L.S., 1903.*

Township 40.—The best way to reach the township is by a road along the north of Battle river. The road is not in good order. The soil is first and second class, consisting generally of sandy loam with clay or sand subsoil. It is suitable for stock-raising or farming. The surface is more or less covered with scattered bluffs of poplar and willows, and there is also a considerable amount of scrub, especially in the northern part of the township. The south is more open. There is only small poplar, and that in limited quantities. There are very few hay meadows of any importance in this township. There are no streams, but quite a number of large lakes, in which the water is more or less alkaline, and, while good enough for cattle, is not sufficiently pure for domestic use. The land is not liable to be flooded. A large muskeg to the south has fresh water, and in the smaller swamps the water is also good. There is one small brook in a coulee at the north of the township in which the water is also sweet. There are no water-powers in the township. No summer frosts were observed and the climate seems suitable for farming. Poplar fuel can be obtained from Battle river within a reasonable distance. No coal, stone or economic minerals were observed. Prairie chickens, ducks, geese, sandhill cranes and swans are plentiful. There are also a few deer.—*Thomas Drummond, D.T.S., 1903.*

Township 41.—This township is comparatively easy of access by wagon trail from Wetaskiwin, the nearest station on the Calgary and Edmonton Railway and about 110 miles distant therefrom. Up to within about 25 miles a number of settlers are located along the trail, and unless the season is very wet, very fair loads can be hauled over it, as most of the creek crossings are bridged and the hills graded. Probably the worst place is the crossing of a boggy marsh on section 25 in township 41, range 13. The nature of the soil in the southerly two tiers of sections averages about first class although they are very much cut up by ponds and marshes generally surrounded by a dense growth of willows. A group of hills covers about one-third of the township. Coming from the south the hills present an abrupt ascent up to a height varying from 100 to 150 feet, the highest point being on the northeast quarter of section 17, where it is almost 200 feet high, and is known as 'Flagstaff hill.' To the north the descent is very gradual, and the foot, therefore, almost difficult to define. Several ravines also traverse the easterly portion of the township, which, although the banks thereof are not very steep, yet cut the land too much for proper cultivation. The valleys at the bottom of these ravines contain many ponds and marshes, frequently strongly impregnated with alkali, which is more particularly the case to the north. The southerly half of the township is fairly well wooded with poplar up to 10 inches in diameter, much of which, however, is fire-killed. The wooded portion of the township will probably not average more than 15 per cent of the whole. There is good grazing for cattle and horses in the hills, which when once ascended form more of a plateau, cut by ravines, then a range of hills, with a gradual descent to the north. The easterly tier of sections, where not traversed by ravines, may also be rated at first class.

TOWNSHIPS WEST OF THE FOURTH MERIDIAN—RANGE 11.

The northerly half of the township consists principally of open prairie interspersed with numerous alkaline ponds. Owing to excessive rains this year and for several seasons past, there are no available hay meadows, and upland hay has to be cut, which, although not in such quantities as in low lands, is said to be more nutritious than that cut in the latter which is of a much coarser fibre. Altogether I may say that this township is better adapted for pasturing cattle than for the raising of cereals. Water this season is plentiful. A live spring is said to exist immediately north of Flagstaff hill, and would probably be on section 20. The water to the south of the hills found in the ponds is of a superior quality to that found to the north, which is more or less strongly impregnated with alkali. No summer frosts were experienced until the first of September. There is no fuel except the standing timber already alluded to; the most of it is fire-killed and of the largest dimensions along the southerly base of the hills in the southwest quarter of the township. There are no stone quarries or minerals of any description. Game, such as ducks and chickens, are plentiful, also rabbits in the poplar bluffs. Deer, although not seen by us, were, to judge by signs, quite numerous. An Indian, so I was informed, killed fourteen head in the hills last fall or winter. A trail, established last spring, runs from No. 1 Battle river mail depot to No. 1 Iron creek mail depot, traversing the southeast quarter of the township in a northeasterly direction.—*C. F. Miles, D.L.S., 1903.*

Township 45.—This township can be reached by trail from Wetaskiwin, via Rosenroll and Heatherbrae, thence by Iron creek trail as described in report of township 45, range 14, west of the fourth meridian. It might also be reached by trail from Lacombe, but I have no knowledge of this route. The soil is principally black loam with clay subsoil and is second and third class. Two valleys run diagonally across the township, one from section 29 to section 13, where it leaves the township, the other starts in section 17 and leaves the township near the southeast corner of section 1, crossing the east boundary; along the course of these valleys are numerous small lakes and ponds. The country is rolling prairie dotted over with clumps of willow and small poplar from 2 inches to 4 inches in diameter and more numerous in the northwest half of the township. There is more or less hay throughout the length of the valleys above mentioned, but there are no good hay sloughs in the township. There are no running streams, the slough water on the high land is fresh, but the lakes or ponds in the valleys are salt or strongly alkaline. Considerable rain has fallen during the first half of July, but there has been no summer frost yet. The only fuel is poplar and willow and there is only a small quantity large enough for that. No coal or lignite was seen. No quarries, but some surface stones. No minerals of value. The game consists of wild duck, prairie chicken and plover.—*Hugh McGrandle, D.L.S., 1903.*

Township 46.—We reached this township by trail from Wetaskiwin, by way of Pipestone creek, Rosenroll, Stony creek and Round hill, where we reached the Battleford and Edmonton trail. We followed this trail till we reached township 48, range 13. We then took a southeasterly course to township 46, range 12, thence easterly to range 11. The roads were very bad, as they crossed many sloughs and mud holes. The soil in this township is mostly black loam with a subsoil of clay. There is, however, some gravel between Hattie and Vernon lakes. A good growth of grass is produced and in some parts farming may be carried on, but the township is more suited for grazing. The surface is rolling to hilly prairie, except sections 16, 20, 21 and part of sections 28 and 29 which are undulating. Small poplar and willow are scattered throughout the township except on the above mentioned sections which are open prairie. The timber is small poplar and willow scattered over the township. Good grasses may be cut for hay in the northeasterly part of the township, but the whole tract is more suited for grazing purposes. Enough hay may be had, however, for farmers' use. There is some blue grass mixed with the bunch grass, which predom-

inates. The water is alkaline and is contained in ponds and sloughs which are constantly renewed by rainfall. The surface is not liable to be flooded. There is no water-power. The climate is mild and wet in midsummer, cold and wet during the early spring and fall. Late frosts about May 20 and early frosts about Septembr 15. Poplar and willow of a scrub nature are the only materials to be had for fuel. No coal or lignite deposits discovered. No stone quarries or minerals were discovered. Wild ducks and chicken are in abundance.—*R. J. Gordon, D.L.S., 1903.*

Township 47.—This township can be reached by the Battleford trail crossing township 48, range 11. A good road can also be made east of the central line in a direction nearly north and south. Though the soil is not very rich in this township, being a small depth of black sandy loam resting on a sandy or hard clay subsoil and stony in some places, good farms can be found here and there. The pasture is good enough. The surface is prairie and scattered poplar bluffs. The country is very broken, principally in the vicinity of the lakes. The numerous bluffs scattered all through this township do not contain much timber large enough for buildings with the exception of the poplar bluffs adjoining Oliver lake, where some poplar from 6 to 10 inches in diameter can be procured. Hay is very scarce. Fresh water is found in all the sloughs and some ponds, but all the lakes contain alkaline water. There is no water-power in this township. The climate is good and there are no summer frosts to injure the crops. There is no stone quarry and no mineral of any description has been found during the subdivision of this township. Fuel is abundant all through the township; it consists of poplar and willow. The game found is the prairie wolf, badgers, foxes, muskrats, rabbits and a few deer. Ducks, wild geese, cranes, partridges and prairie chickens are plentiful. The general appearance of the country in this township is hilly and broken with deep ravines, dotted with lakes, ponds and sloughs.—*J. B. Saint-Cyr, D.L.S., 1903.*

Township 48.—This township can be reached by the Battleford trail, which passes through sections 31, 32, 33, 34, 26 and 25, and also by way of Vegreville. The soil here is mostly composed of black sandy loam, resting on a subsoil of sandy clay or sand. The country is not very well adapted for farming, it is so hilly and broken, and cut by a great number of ponds, sloughs and lakes. Nevertheless, east of Camp lake and in the vicinity of the correction line, the land can be cultivated profitably. The surface is prairie, with bluffs of poplar and willow. The bluffs are rather small, and the timber is of inferior quality, and can only be used for fencing and fuel, and probably a few trees here and there can be found for building log cabins. This township cannot be surpassed as grazing land. The hills are covered with very good hay. No large hay marshes or sloughs are found in the township. With the exception of the lakes, where the water is hard, good soft water is found in almost every slough and pond. The climate is favourable to the crops, for according to the report of settlers living north of here there is no summer frost. Wood for fuel is abundant in every part of the township, and consists of large willow and poplar. There is no water-power, no minerals of any sort, and no stone quarries. Game is plentiful. There are deer, badgers, prairie wolves, porcupines, rabbits and muskrats. The feathered game is wild geese, ducks of all species, cranes, partridges and prairie chickens. The country is very broken and hilly, with numerous lakes and ponds. As a sporting country, this township cannot be surpassed.—*J. B. Saint-Cyr, D.L.S., 1903.*

Township 51.—The north and east parts of this township are rough and hilly, broken by numerous small ponds and a few lakes. About a half of sections 6 and 7 is covered by a large bay of Birch lake. A large and deep coulee runs across sections 34, 35, 26, 23, 14, 13 and 12, and it can hardly be crossed on foot. The southwest is undulating. It is scrubby prairie, with scattered bluffs of dry and green poplar, and this is the only supply of fuel in this township. The soil is a good black sandy or clay loam, from 8 to 18 inches deep, on a sandy or clay subsoil. The supply of water is

abundant, and good everywhere except around Birch lake, where the water is very alkaline. A creek about 4 feet wide and 2 feet deep, with good water, flows southeast at the bottom of the coulee. A trail from Vegreville to Battleford crosses sections 7, 8, 9, 4, 3, 2 and 1. Another from Vegreville going north crosses sections 31 and 32. I opened a trail along the central meridian. These trails would be pretty fair in a dry season, but this year they are very wet. The Canadian Northern Railway surveyed many exploration lines across the south part of the township. Ducks are plentiful; also prairie chicken, partridges, muskrats and wolves. There are no minerals, water-powers or stone quarries. The land is liable to be flooded only around Birch lake, where it is flooded now. This township is generally well adapted for farming. Hay is scarce, but there is some around Birch lake but it is very poor. The grass even on the top of the hills is rich and abundant, but this is probably due to the fact that last season was exceptionally wet. There is no timber in this township, but in the northwest portion there is some poplar large enough for building shacks and for fencing.—*A. Michaud, D.L.S., 1903.*

Township 52.—The township is rough and hilly, broken by innumerable small ponds and a few good sized lakes. A large and deep coulee crosses sections 19, 20, 17, 8, 9, 5, 4 and 3. A creek 3 feet wide and 3 feet deep crosses sections 20, 29, 28, 27, 26 and 25 flowing east; both this creek and the one in township 51, range 11, drain the coulee, one flowing east and the other southeast. This one mentioned above is the only permanent creek ; all other streams are due to the great amount of rain which has fallen lately. There is a large lake on sections 12, 13 and 14. The soil is a black sandy and clay loam from 3 to 12 inches deep on a sand or clay subsoil, average second class. This township would be well adapted for farming if it were not so hilly. The soil is rich and has good vegetation, but there is no hay except at the bottom of the coulee, and it is under 2 feet of water. Half of the township is covered by bluffs of thick poplar from 3 to 12 inches in diameter. The rest is scrubby or open prairie, being mostly in the centre of the township. The supply of water is abundant and permanent. A trail crosses sections 2, 3, 10, 9, 17, 20, 30 and 31, going to Whitford lake, another trail from Vegreville branches from this one on section 17, where it crosses the coulee. This is the only place where the coulee can be crossed with teams and loads. Branching from the first trail on section 30, I opened one across sections 30, 32, 33, 27, 26, 35 and 36. These trails are good considering the rough and hilly character of the country. Ducks are plentiful and there are a few prairie chicken and partridge. Muskrats are abundant, but Chippewa Indians are trapping them by hundreds. We saw 6 or 7 bears and 1 deer. No fish. The land is not liable to flood if we except the bottom of the coulee and the south of the creek on sections 26, 27 and 28, which lands are now flooded. The only place to cross that creek is on section 20 at its source. No summer frost. There is no water power, minerals or stone quarries. There is no timber in this township but poplar, but as these are 3 to 12 inches in diameter they will be big enough for the building of log houses and fencing. There is enough of them for these purposes on every quarter section.—*A. Michaud, D.L.S., 1903.*

Township 53.—This township is rough and hilly, covered by thick poplar bush with heavy underbrush of willows. The soil averages 4 inches of black sandy or clay loam on a subsoil of sand or clay. The township is not suited for agricultural purposes, and there are no trails passing across it. At the time of the survey nearly half of the township was under water, every hollow was filled with good water. Ducks, partridge and muskrats are thick. There are also a few bears but no fish. There is a big hay slough on sections 25 and 36, but it was covered by at least a foot of water. The northeast half of the northeast quarter of section 36 is open prairie and would be a good homestead. There is no mineral, no stone quarries and no water-power. Poplar is the only timber and they are from 4 to 12 inches in diameter. There are also a few birch on section 34, size 8 or 10 inches in diameter.—*A. Michaud, D.L.S., 1903.*

TOWNSHIPS WEST OF THE FOURTH MERIDIAN—RANGE 11.

Township 54.—This township is rough and hilly, broken by numerous ponds and swamps and is partly covered by poplar and spruce from 6 to 12 inches in diameter. Vermilion river crosses sections 30, 19, 29, 20, 21, 22, 16, 15, 14, 11 and 12. There is a little hay on the south side of the river on sections 12, 11 and 15, but more on the north side, especially on sections 21, 20 and 29. A ranch is located on section 21 and is keeping about 80 head of cattle. This part of the township along the Vermilion would be good farming and ranching country, while to the south and the northwest of the Vermilion, would be a good second class farming land. The northeast quarter of the township is very rough. The soil is a black sandy or clay loam from 4 to 18 inches deep on a clay or sandy clay subsoil. The old Battleford trail crosses the township on the north side of the Vermilion. I opened a trail on the south side across sections 1, 11, 15, 16, 17, 18 and 19. The Battleford trail is wet, but the one I opened is good. The supply of water is abundant and good. Prairie chicken, partridge and muskrats are plentiful. I have been told that there are some fish in the Vermilion, but I saw none. The land along Vermilion river was flooded. There are no water-powers, minerals nor stone quarries. The poplar runs from 6 to 12 inches in diameter and is distributed in bluffs more or less all over the township. There are also spruce or tamarack swamps on sections 2, 10, 9, 16, 22, 23, 24, 28, 33, 32, 13 and 26. Spruce is not in sufficient quantity for trade, but there will be enough to answer the needs of the settlers; few of them are as large as 20 inches on the stump.—*A. Michaud, D.L.S., 1903.*

Range 12.

Township 1.—This township is rough and broken prairie, well adapted for stock grazing. Milk river flows eastward across the northwest corner. Clumps of bush are found in the river valley and in some of the coulees running into the river. The soil is second and third class. There are several ranchers located in the township.—*E. J. Rainboth, D.L.S., 1902.*

Township 2.—This township is generally a rolling prairie, with a good growth of grass of excellent quality. Milk river crosses the southeast corner, flowing eastwards; its valley affords shelter for stock during stormy weather. There were a number of cattle found grazing over this township, for which purpose it is best suited.—*E. J. Rainboth, D.L.S., 1902.*

Township 38.—This township is easily reached as the main trail from Red Deer to Battleford passes through it. The soil is a clay and black loam, with a clay and sandy subsoil. The black loam is not very deep, not more than 6 to 8 inches at the most. This township is ranked as second class land, and is suitable for grazing purposes. The surface is rolling prairie, dotted with bluffs of poplar and willow bush. The timber consists of some large spruce from 10 to 20 inches in diameter, also poplar and balm of Gilead. These are found in section 31 along Beaverdam creek, and also along the creek which runs through sections 23, 26 and 36 to Battle river. A limited quantity of hay is found only around the hay sloughs. Good fresh water is obtained from the Beaverdam in sections 31 and 32, and also from the creek which runs through sections 11, 14, 23, 26 and 36 into Battle river. There are no falls or rapids in the township. Wood is scarce, but a considerable quantity can be obtained in the township north along the banks of Battle river. No coal or lignite veins were found, and there are no stone quarries or minerals in the township. Ducks, geese and prairie chickens are the only game found.—*Joseph A. Carbert, D.L.S., 1903.*

Township 40.—The most convenient route for reaching the township is from Wetaskiwin along the trail to the north of Battle river. The road is not in good order. The township as a whole is rated as class two. It is suitable either for farming land or stock-raising, especially the latter. About one-half of the township is covered with

scattered bluffs of poplar and willow, and the remainder is open. The timber is all small and it is only suitable for firewood. Hay sloughs and meadows are plentiful in the western half of the township, and they grow the ordinary wild hay of the country. The surface water in the swamps is fresh and many of them are permanent, I should judge. They are certainly plentiful this season. No streams were found in the township and there is therefore no water-power. The climate seemed fine and no summer frosts were observed. The poplar found in the township is very small, practically not fit even for firewood. Good firewood can be obtained within a reasonable distance from Battle river. No coal seams were observed and no solid deposits of rock show on the surface. No minerals of economic value were noticed in the township. Prairie chickens and the various kinds of wild waterfowl are plentiful.—*Thomas Drummond, D.T.S., 1903.*

Township 41.—This township is located about 100 miles easterly from Wetaskiwin, the nearest station on the Calgary and Edmonton branch of the Canadian Pacific Railway, and may be reached by a very fair and direct trail. In normal seasons this trail is in pretty good condition, but in wet seasons, as the past one proved to be, it is at times very miry in places, otherwise reasonably heavy loads can be brought over it by teams. The soil consists of a black loam, varying in depth from 3 to 12 inches, underlaid by a sand and clay subsoil. The south half of the township is superior to the north half, although somewhat broken by the more or less abrupt southerly slope of the hills, referred to in the description of 41-11-4. The northerly portion is much cut up by marshes and flats of an alkaline character, and therefore not particularly adapted for grazing or the raising of cereals, with the exception of the northerly tier of sections. Good pasturage is found over nearly the whole of the south half, which also is likely to produce good crops when once broken up and cultivated. The greater part is open prairie, rolling along the southerly two tiers of sections, flattening out toward the centre and the north. No timber of any considerable quantity or value exists, what there is being mostly in the north. Poplar and willows, the latter predominating, would not cover more than 7 per cent of the whole area. Probably 600 or 700 tons of upland hay were cut the past season north and west of Schultz lake, which is situated in parts of sections 3 and 4. Water was quite plentiful during the past season, principally surface water, but of inferior quality. Some running water was observed in a coulee on section 31 and in the northeast corner of section 32, but it is my belief that it is not permanent and merely owing to the heavy rains prevailing during the summer. On section 24 there is part of a small lake which may retain water permanently. If such be the case, it is quite possible that it is fed by springs. The climate was most variable, no very warm weather was experienced, neither were there any summer frosts, at least not before the beginning of September. The supply of fuel is scarce and may have to be brought from a distance. Coal seams are said to exist on Battle river, some 15 miles to the south and to the east. None was found in this township, neither were there any stone quarries nor fixed rock of any description, and no minerals whatever. In the southeast corner of the township a spur of the hills above mentioned faces somewhat abruptly to the south, but runs out by a very gradual almost imperceptible descent to the north. There being no running water of any account, no water-power exists.—*C. F. Miles, D.L.S., 1903.*

Township 45.—This township can be reached by trail from Wetaskiwin via Rosenroll and Heatherbrae, thence by Iron creek trail as described in report of township 45, range 14, west of the fourth meridian. It might also be reached from Lacombe, but I have no knowledge of the trail. The soil is principally a black loam with clay subsoil. A shallow valley runs diagonally across the township from section 30 to section 1, dividing it into nearly equal parts. To the north and east the country is very rolling and fit for grazing only, while to the south and west it is more level and fit for mixed farming. The surface is prairie with bluffs of poplar and willow

and numerous small ponds and sloughs, round most of which there is a thick growth of young poplar and willow brush. The only timber is young poplar, averaging from 2 to 4 inches in diameter, growing in bluffs and around swales. The largest seen was in sections 23, 24, 25 and 1, where it was about 6 inches in diameter. There is more or less hay throughout the length of the valley above mentioned, but of poor quality. There are no running streams in the township, but the water is fresh and much better in quality than in the townships previously surveyed, as there is no alkali, and most of the ponds appear to be permanent. There is no water-power. Considerable rain has fallen during the past fortnight (June), but there have not been any frosts. The only fuel is poplar and willow. No coal or lignite has been seen. There are no stone quarries or minerals. Duck, prairie chicken and plover were seen. —*Hugh McGrandle, D.L.S., 1903.*

Township 46.—We reached the township by way of Wetaskiwin on the Calgary and Edmonton Railroad, thence by trail passing Pipestone creek, Rosenroll, Stony creek, Demay lake and Round hill where the Battleford and Edmonton trail joins the trail from Stony creek. We followed the Battleford and Edmonton trail as far as range 13, where we took a southeasterly course till the township was reached. The roads were very bad as the trail crosses many sloughs which cannot be avoided. The soil is mostly black loam with a subsoil of clay, producing a luxuriant growth of good grasses. The surface is hilly prairie dotted with small poplar and willow. There is some poplar large enough for fuel but not large enough for building purposes. Hay may be cut from nearly any part of the township as the grass is luxuriant and of good quality, there being considerable blue grass, bunch grass and a variety of other prairie grasses. The fresh water ponds are numerous and are constantly renewed by rainfall. Good surface wells may be obtained. There are no streams and the surface is not likely to be flooded. The climate is mild in temperature and very wet. Rain has fallen almost incessantly from June 18 to September 15, and very little sign of its clearing; the sun seldom shining, but it is hot when it does. We had late frosts about May 25 and frost again about September 20. In spite of these drawbacks vegetation grows rapidly and is surprising. The only fuel to be had is small poplar and willow which is scattered throughout the township. There are no indications of coal or lignite whatever. The only stone to be found is in gravel beds in the east central part of the township. No minerals were discovered. There are ducks and geese in abundance, also prairie chicken; two deer were sighted. This township is more suited for stock raising than for any other purpose.—*R. J. Gordon, D.L.S., 1903.*

Township 47.—This township can be reached by the Battleford trail, passing a few miles north of Thomas lake, which is the best road from Wetaskiwin. The soil is mostly composed of black sandy loam resting on a subsoil of sandy clay or sand. The central part of the township can be profitably cultivated but the remainder is more of a ranching country, the land being hilly and broken and cut with innumerable sloughs and ponds. The surface is prairie and willow and poplar bluffs all through the township. The poplar found vary from 4 to 8 inches in diameter and can be used for building log houses. There are no bluffs of any extent but what there are, are located mostly in sections 27, 28, 33 and 34. At the west of Thomas lake there are a few hay marshes which produce a large quantity of good hay. The hills are covered with a good grass. In the flats good hay can be made to meet the requirements of the settlers. Rain has been too abundant this year to allow the cutting of hay in the sloughs. Nearly all the ponds in the township contain alkaline water, while comparatively good fresh water can be had in all the willow sloughs. There is no stream of any description here. The climate seems to be good with no summer frost. I happened to see some beautiful potatoes and pease in bloom, also oats and vegetables of all kinds grown by Mr. H. H. Thomas, a squatter on south half of section 34; his crop is very promising. There is enough poplar for fuel for a few years to come.

No minerals nor stone quarries have yet been found here. In all the surrounding townships the game consists of prairie wolves, badgers, foxes, porcupines and rabbits. Last winter a few deer were seen around here. Bustards, wild geese, ducks of different kinds, partridges and prairie chickens, seem to be plentiful. The southern portion of Thomas lake is situated in this township on sections 32, 33, 34 and 35. The depth varies from 8 to 15 feet. From the east end of this lake there is a deep valley running southeast with a chain of small alkaline lakes, which in the past probably formed but one lake with Thomas lake. The general appearance of the township is hilly and broken with deep ravines and dotted with ponds. The side hills are covered with willow and small poplar bluffs. The land in sections 3, 4, 9, 10, 14, 15, 16, 17, 18, 21, 22, 31, 32, 33 and 34 can be cultivated, as they are not so hilly as the rest of the township, which part, however, cannot be surpassed as grazing land.—*J. B. Saint-Cyr, D.L.S., 1903.*

Township 53.—The southwest quarter of sections 19, 30 and 31 are very rough and hilly, densely wooded with poplar of large size. The north of Plain lake is low and wet, covered with willows and small poplar. The balance of the township is scrubby prairie (rolling) with scattered bluffs of dry or green poplar, which will give a good supply of fuel. Plain lake covers almost half of the north half of the township. A chain of lakes connected by a creek runs across sections 1, 2, 3, 4, 9, 8, 5 and 7. There are also numerous ponds and lakes. The soil is a black sandy or clay loam on a subsoil of sand, gravel and clay, the depth of the loam being from 4 to 18 inches and over. There is a little hay on sections 21, 22, 23, 16, 15, 14, 10, 11, 2 and 1, but this year this portion was under water. When cleared of bush and drained the north of Plain lake will grow first class hay; the draining would be easily done by deepening 3 or 4 feet the outlet of Plain lake on section 32 for about 100 yards. Ducks, prairie chicken, partridge and muskrats are plentiful and there are a few deer and bears. An old Indian trail, pretty wet in some places, crosses sections 1, 2, 11, 14, 15, 22, 21, 29 and 30, connecting to the west with the trails to Whitford and Vegreville, and to the east with the trails in township 52, range 11, and 54, range 12. Many Galicians are already established here. The supply of water will be good and permanent. There are no fish in the lakes. There is no water-power, minerals or stone quarries. Poplar is the only timber in this township. There is a good supply of large size (from 6 to 12 inches in diameter) in the southwest quarter, and also in the north quarter of the township, but they are smaller.—*A. Michaud, D.L.S., 1903.*

Township 54.—The south half is rough and hilly, north half is undulating. The south half very wet, especially to the southeast, but would be easily drained, being 150 or 200 feet above Vermilion river. If drained it would be a good second class land for farming, as soil is a sandy or clay loam on a subsoil of sandy clay or clay. The north half along the Vermilion is good for ranching; the balance of the township being suited for farming. The outlet for Plain lake in township 53, range 12, crosses sections 6, 7, 8, 17, 18, 19, 30 and 31 to Vermilion river. The Vermilion and the lakes cross sections 30, 31, 32, 29, 28, 27, 26 and 25. Every one of these sections is good hay land. Two ranchers, Hughson on section 25 and Fife on 32, are keeping each about 200 head of cattle, and St. Hilaire on sections 25 and 36 has about 25 head. The Battleford trail on the north side of the Vermilion crosses sections 31, 32, 33, 34, 35 and 25. Two other trails branch from this trail on sections 35 and 31, and lead to Todd's crossing on the Saskatchewan. On the south side of the Vermilion, another trail leading to Vegreville crosses sections 24, 23, 22, 21, 20 and 18. The Vermilion is easily crossed with teams and loads on the east boundary of section 31. There are no minerals, water-powers or stone quarries of any kind. Wild duck, prairie chicken and muskrats are abundant. We saw also a few bears. There are no fish at all except in the Vermilion, so I was told, but I did not see any. The south half of this township is densely wooded with poplar from 3 to 12 inches in diameter, but the north half is scrubby prairie, with scattered bluffs of poplar.—*A. Michaud, D.L.S., 1903.*

TOWNSHIPS WEST OF THE FOURTH MERIDIAN.

Range 13.

Township 1.—This township is a rolling prairie, very much broken, with deep coulees extending from the south outline to Milk river, which flows eastward across the northeast corner. These coulees are generally wooded with poplar and willows, and in some are found springs of good water. Some cattle ranchers are located in the township. The grass is of an excellent quality and the soil is sandy loam of second quality.—*E. J. Rainboth, D.L.S., 1902.*

Township 2.—This township is a rolling prairie excepting the southwestern part, which is hilly and broken by coulees running into Milk river, which flows southeastward across the southwest corner. Some poplar and willow bush is found along the river in places, affording good shelter for stock, for which this township is well adapted as the grass is of a superior quality for grazing purposes. Three ranchers or stockmen are located along the river bottom, owning each several hundred cattle. The soil is generally a sandy loam and is classed second quality.—*E. J. Rainboth, D. L.S., 1902.*

Township 37.—This township is reached by a well travelled trail passing through the township running from Red Deer easterly to Battleford. The soil is generally a loamy clay, with black sandy loam in some portions, and with the exception of a few sections of first class land is ranked as second class. It is suitable for agriculture and grazing. The surface is open rolling and undulating prairie, somewhat broken by ravines. There is no timber of any kind in the township. A moderate quantity of hay is found around the hay sloughs. Good fresh water is found in Beaverdam creek and several other smaller creeks in ravines, and also in the hay sloughs. There are no rivers, waterfalls or rapids in the township. There is no timber or wood for fuel purposes, but coal can be obtained in the adjoining township to the west. There are no minerals or stone quarries. Ducks and prairie chickens are the only game found.—*Joseph A. Carbert, D.L.S., 1903.*

Township 38.—The ranchers' trail going to Blackfalds passes through the south part of this township. It is a fairly good trail. The soil is generally a layer of black loam over a clay subsoil, not as hard here as in the townships already surveyed. The surface is mostly rolling prairie, with scattered bluffs of small poplar and willows of little account, except on sections 6 and 5, where there is poplar from 3 to 5 inches in diameter. There is hay all over ,but especially towards the south part. Beaverdam creek flows through the northern tier of sections. The banks are very easy, and not more than 30 to 40 feet high. It can be crossed nearly anywhere in a dry season; however, there are two good crossings, one on section 36 and the other one on section 33. This stream is about 10 feet wide, 2 to 3 feet deep, and the water is good, as is also that in the sloughs. There is not sufficient fuel for any length of time, and I have seen no indications of coal nor any minerals of value. There is no exposed rock. There is one settler. He has a ranch on southwest quarter of section 36.—*Geo. P. Roy, D.L.S., 1903.*

Township 39.—There is no regular trail across this township. However, the ranchers to the southeast, as evidenced by the tracks I have seen, cross it to go to Wetaskiwin, a town situated on the line of the railroad from Calgary to Edmonton. Red Deer can be reached by the trail leading to the township to the south of this one, then by going due west along the correction line travellers would meet the trail to Willow creek, which leads to Lacombe. The soil is generally fair, being black loam over a clay subsoil. There are quite a number of small boulders on sections 22 and 23. The south half of the township is rolling prairie, mixed with bluffs of poplar and willow, these last forming a fringe around the numerous sloughs found in the township. It becomes hilly in sections 13 and 14. The north half of the township is mostly badly broken country, cut by numerous coulees and deep ravines, leading mostly all to Battle river, which flows across the northeast corner in the bottom of a valley two hundred feet

deep, and bordered by very steep banks. The valley of Paint-earth creek is nearly as large and certainly as deep as the valley of Battle river, and divides the country in such a way as to make the northwest corner, through which it runs, unfit for farming purposes. Duck and prairie chicken are found in all the surrounding country, but are about the only game in the country.—*George P. Roy, D.L.S., 1903.*

Township 40.—The township can be reached by road from Wetaskiwin, Red Deer or Lacombe, but the road is not in good order. The soil is fairly good, mainly second class, suitable for either farming or ranching. The surface of the township is very much cut up by the valley of Battle river and its tributary gulches and ravines. It is more or less thickly covered by bluffs of poplar and willow, affording a plentiful supply of firewood. A limited amount of good building timber is available in the valley of Battle river. Good hay meadows and sloughs are scattered over the township. The surface swamp water is fresh, but in extremely dry seasons it may not be permanent. There are quite a number of springs in the ravines, but most of them are slightly alkaline. The township is traversed by Battle river, which is good fresh water. It is from one and a half to two chains in width and three to ten feet in depth; the current is about one and a half miles per hour. Natural water power is non-existent, and it cannot be developed artificially. The climate is pleasant and no summer frosts were observed. Indications of coal are to be seen along the river, and good workable seams could probably be developed. Sandstone, impure limestone and clay ironstone are also exposed along the river. Ducks, geese, swans, sandhill cranes, prairie chickens and rabbits are plentiful, and there are quite a number of deer.—*Thomas Drummond, D.T.S., 1903.*

Township 41.—This township is situated on the direct trail from Wetaskiwin, a station on the Calgary and Edmonton branch of the Canadian Pacific Railway, distant about 90 miles from Schultz lake. It is a fairly good trail, except in very wet seasons, most of the steep hills being graded and the creek crossings bridged. During ordinary seasons a fairly good load can be hauled over this trail. The soil generally consists of black loam, varying in depth from 3 to 12 inches, underlaid by a stiff clay, which is more or less difficult to penetrate. The southwest quarter of this township may be classed as superior to the remaining part, and is more thickly wooded, an indication of the soil being better adapted for cultivation than the open parts. Most of the land in the remaining portions can only be rated as second class, and in the southeast quarter is third class. Here the greater part of the water contained in the ponds and marshes is of an alkaline nature. In the easterly half of this township open prairie predominates, the southerly half of which is much cut up by ponds and marshes, some of which cover a considerable area, but whether they are permanent appears to me doubtful. The timber which is at all suitable for domestic purposes is nearly all located on the southwest quarter, the poplar rarely exceeding 10 inches in diameter. Sufficient might be had, in the early stages of settlement, for a limited amount of building logs and for fuel. The meadows, or what may at certain dry seasons constitute meadows, are now more or less flooded, so that hay, if necessary, during the last few wet seasons, would have to be obtained from the uplands. The water in the ponds and marshes is all surface water; none of any permanent character is seen, to the best of my knowledge, unless there may be found springs in a ravine or coulee, which traverses the whole breadth of the township. This ravine or coulee enters the township on section 19, leaving it again on section 25, thence traversing the corners of two more townships easterly and emptying in a good sized lake, with an alkaline bottom, in township 42, range 11, and thence ultimately emptying into Battle river to the east. This ravine crosses sections 19, 20, 21, 22, 23, 26 and 25, and is almost impassable, the bottom being generally a boggy marsh. The banks vary in height from 20 to 30 feet, and are not very steep, but the boggy bottom itself forms a sufficient bar against easy crossing at any place. For the information of intending settlers, it may be stated that the

southerly half of this township is easiest of access by crossing the ravine in the southwest corner of township 42, range 14. The trail to Schultz lake crosses the ravine on section 25, where, however, it is very mucky, and would not make a permanent crossing except by bridging. The climate, as far as experienced, is probably similar to that of adjacent townships where no frosts were noticed until early in September. No stone quarry or fixed rock of any description was observed. There being no running water, of course there is no water-power. There is a slight current in the ravine mentioned above, a few miles to the east. By constructing a dam across the ravine in some convenient place, it is possible a reservoir might be formed, retaining water for a limited period. Game, such as chickens, duck and deer, appeared to be plentiful.—*C. F. Miles, D.L.S., 1903.*

Township 42.—A trail from Wetaskiwin, the nearest station on the Calgary and Edmonton branch of the Canadian Pacific Railway crosses the southwest quarter of this township. During ordinary dry seasons it is in very fair condition, so that reasonably heavy loads may be brought over it, the distance from Wetaskiwin being about 85 miles. The soil consists of a black loam with a depth varying from 3 to 12 inches, underlying which is a subsoil of clay, a very tenacious substance, at times difficult to penetrate. This township is largely open prairie, the wooded portion not exceeding 8 per cent and the greater part of this consists of willows. Some few small poplar groves are scattered through the southerly part of the township, the greater portion, however, being located in the northeast quarter, not exceeding, however, 8 inches in diameter. But little of this is suitable for building purposes and as for fuel, there is is but a limited supply. There are a good many hay meadows more particularly in the southern part and some in the western part of the township, which, however, this season, were all flooded to over-flowing. Water is very plentiful, in fact every depression was filled up, but as far as I could see, it was only surface water. The flats generally were sodden, owing to frequent heavy rains, but no live springs or running waters were discovered. A ravine or coulee traverses this township through its central portion in about an east and southeasterly direction, and it is quite possible that springs may exist somewhere along its banks, which vary considerably in height in places as on the east boundaries of sections 17 and 20 where it is flattened out to a level marsh and then again rising to the east, or lower down, to banks rising to the height of 30 or 40 feet. To the west, too, banks were seen along the course of the coulee. There is water in the bottom, but no perceptible current in this township, although farther down a current was noticed flowing easterly. There are no quarries, but stones and boulders are strewn thickly along the bottom of the above mentioned coulee. No minerals of any description were seen nor was any fixed rock discovered. With regard to climate but little can be said, this season altogether being an abnormal one. A great deal of rain fell and no excessively warm days were experienced, nor any summer frosts either, the first one being noted early in the month of September. A heavy thunder storm was experienced on the afternoon of August 29, accompanied by hail and hailstones of unusual dimensions. Game, such as ducks and prairie chickens were encountered daily, as also on several occasions larger game such as deer. These latter were observed in the northeasterly portion of the township, where it was more wooded than in the other parts.—*C. F. Miles, D.L.S., 1903.*

Township 45.—For route refer to township 45, range 14. The soil is a black loam with clay subsoil and sand and gravel in places. It is suitable for mixed farming. The township is mostly undulating prairie, rolling in the southern portion with gravel and stony ridges. There are several small sloughs fringed with willow and small poplar 3 inches to 4 inches in diameter in the eastern portion. A small alkaline creek averaging 10 links wide and 2 feet deep and sluggish current enters on section 32 and runs in a southeasterly direction and leaves the township in section 2. It would in case of a wet season be liable to flood a considerable part of the northern

portion of section 16 and the southern portion of section 2. Small ponds cover a portion of the west part of section 10. Lakes in the eastern part of sections 24 and 13 are now mere sloughs; these would ensure a permanent supply of water. There is no water-power in the township. Climate is dry and windy, northwest winds prevailing. A white frost occurred on June 9. There is a limited supply of poplar in the eastern portion of the township. No coal or lignite was seen and no stone quarries but some loose boulders. No minerals of economic value were found. No large game was observed, but small game such as rabbits, ducks and grouse are plentiful.—*Hugh McGrandle, D.L.S., 1903.*

Township 46.—Route to this township is the same as given in report of township 45, range 14. The soil is a light black loam 4 to 12 inches with clay subsoil, gravelly in places, suitable for mixed farming. The township is rolling prairie with gravelly and stony ridges, numerous sloughs and willow swales. There is a large grassy marsh on sections 27, 28, 33 and 34; on 20 and 29 and on 14 and 15. There is no timber except fringes of poplar 3 to 4 inches in diameter. Willow swales mostly in the southern portion of the township. No hay meadows excepting the coarse grass in the sloughs. The water in this township is alkaline. A small stream 5 to 10 links wide and an average depth of 2 feet, sluggish current, passes through sections 30, 19, 18, 7, 8 and 5 flowing in a southwesterly direction; no permanent supply is available. The climate is dry and windy, prevailing winds northwest. There is a limited supply of wood in the southwest portion of the township. No coal or lignite, stone quarries or minerals of economic value were found. No large game was observed, but small game such as rabbits, grouse, ducks and geese are plentiful.—*Hugh McGrandle, D.L.S., 1903.*

Township 47.—This township can be reached by the Battleford trail passing near and parallel to the north boundary of township 48, range 13, and also by a wagon road passing east of Thomas lake, a road which goes as far as Quarrel lake; both trails are very good and heavy loads can be teamed over them. Four-fifths of the land in this township is well adapted for farming, being composed of a good depth of black loam, resting on a subsoil of clay and sand. The remaining portion can be utilized as pasture. The best farming land is found on sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 23, 24, 25, 26, 32, 35 and 36. The surface is scrubby in the low places with small bluffs of poplar and large prairie openings scattered all through the township. There is no timber of any value except for fuel. A great number of sloughs and marshes containing good water and hay are found all through this township. The water here is generally fresh. There is no stream of any size. No minerals or stone quarries were noticed. There is no summr frost to harm the crop, according to the report of settlers living north of here. The game found here is the prairie wolf, fox, badger, porcupine, hare and a few skunks. As to the feathered game, there are prairie chicken, partridges, ducks of different species and wild goose in abundance. The only lake found in this township is lake No. 1 of a general depth of 5 or 6 feet and containing fresh water. The country is undulating through the central and western portion, while it is rolling and hilly in the north and east. On the east boundary, the country is rough and hilly. Settlers will find here all they want. They can get poplar logs for building their houses in township 47, range 12, south of Thomas lake. Loose stons for foundations are found in some places, especially in the hollows. The poplar for fuel found in this township if cut judiciously, will last a few years. The country presents a very pretty aspect and roads can be made in all directions with comparatively very little expense.—*J. B. Saint-Cyr, D.L.S., 1903.*

Range 14.

Township 2.—This township is a dry rolling prairie broken by ravines running into Verdigris coulee and Milk river, the latter runs across the township in the south-

ern part from west to east and the former crosses diagonally from the northwest corner which is occupied by a large alkali slough or pond emptying into Milk river on section 12. The soil is generally a sandy loam, mostly second class, with a good growth of grass and is most suitable for ranching or grazing purposes. A sheep rancher is located at the mouth of Verdigris coulee.—*E. J. Rainboth, D.L.S., 1902.*

Township 37.—This township lies directly south of the main trail leading from Red Deer to Battleford. The soil is a good black sandy and clay loam from 18 to 24 inches in depth, and is suitable for agricultural and grazing purposes. The surface is rolling prairie except in the northeast corner where it is somewhat broken by a creek with cut banks. There is no timber of any account in the township. Good hay in large quantities can be found around the sloughs and the lake. Good water is found in Beaverdam creek and other small creeks, and fair water in the lake at the northwest corner. There are no falls or rapids in the township. Very little wood can be had for fuel. Evidences of coal deposits were found in sections 23 and 24 along Beaverdam creek. No stone quarries or other minerals were found in the township. Ducks, geese and prairie chickens were found in abundance.—*Joseph A. Carbert, D.L.S., 1903.*

Township 38.—The main trail of this country leading to the railroad passes through the south part of this township. A substantial bridge 11 feet wide by 33 feet long has been built by McAviety over Beaverdam creek near the quarter section post on the east boundary of section 3. The soil is generally a layer of 6 to 12 inches of black loam over a hard clay bottom, looking in many places as if it had been baked. What is called the 'bad lands' is situated in this township and covers part of sections 8, 9, 16, 17. The surface is rolling. There is very little timber on the township, with the exception of the sixteen sections forming the northeast part of it, where there is some poplar and willows. There is a certain amount of spruce along Beaverdam creek. Hay is found all over the township in these wet years, more especially towards the south. The water in the sloughs, of which there are not a great many, is generally good, as is the water of Beaverdam creek. The said Beaverdam is a creek about 10 feet wide, with an average depth of 3 feet, probably dried up except during rainy seasons. It furnishes no water-power. The timber in the township would not supply fuel for more than a year, but coal exists at least on section 2, and is found right on the trail. The climate is as good as it is anywhere in Alberta. On the Beaverdam near the intersection of the east boundary of section 16, there is a kind of quarry of soft stone which appears to me to be nothing else but clay half baked. I hardly think it is solid enough to be used as building material. The only squatter on this township is Mr. McAviety on the southwest quarter of section 2.—*Geo. P. Roy, D.L.S., 1903.*

Township 39.—Blackfalds, Red Deer and Lacombe are reached by the trail which crosses township 38, or by travelling on the correction line until it intersects the same trail. A track running northwest across the township leads to Wetaskiwin. The soil is generally black loam over hard clay. The surface is mostly rolling prairie, with bluffs of poplar and willows. The valley of the Paint-earth and the numerous deep gullies leading to it will be the main drawback to the speedy settlement of this township. The water of the Paint-earth and that in the sloughs will be scarce in very dry seasons. There is no water-power available. The climate is the same as all over this part of Alberta. I believe coal could be found in the township, as there are indications of it on section 2, township 38, south of this one. I have noticed no stone quarries. Ducks and prairie chickens are the only kind of game. There is an abandoned shack with about six acres of land under cultivation about the middle of section 24.—*G. P. Roy, D.L.S., 1903.*

Township 40.—The township can be reached by road from Wetaskiwin, Lacombe and Red Deer. The first is probably the best route, but the road is not in good order. The soil is fairly good, mainly second-class. It is suitable either for farming or ranch-

ing, especially the latter. Battle river traverses the township. It is one and and a half to two chains in width, and from three to ten feet in depth. The current is about one and a half miles per hour. The adjoining lands are not liable to be flooded. Water-power cannot be developed from the river. The surface is much cut up by the valley of the river and its tributary gulches and ravines. It is more or less thickly covered by bluffs of poplar and willows, suitable for firewood, but a fair amount of good timber, both poplar and spruce, can be obtained in the valley of the river. A fair amount of hay can also be cut in sloughs scattered over the township. The surface swamp water is fresh, but probably not permanent in very dry years. A good many springs are found along the river, but many of them are alkaline. Indications of coal and iron are to be found along the banks of Battle river; workable seams of coal could probably be found. Sandstone, impure limestone and clay ironstone were observed along the river in the cut banks. The climate is pleasant, and no summer frosts were observed. Ducks, geese, swans, sandhill cranes, prairie chickens and rabbits are plentiful, and there are also quite a number o
—*Thomas Drummond, D.T.S., 1903.*

Township 41.—This township is situated about 85 miles east of Wetaskiwin, the nearest station on the Calgary and Edmonton branch of the Canadian Pacific Railway. A direct trail from Wetaskiwin to Schultz lake on the south boundary of section 3, township 41, range 12, passes within a few miles of the northeast corner of this township, and is available for incoming settlers. The soil consists of a black loam, varying in depth from 4 to 12 inches, with generally a clay subsoil, which to judge by the luxurious growth of the grasses promises good returns from cultivation. Both the easterly and westerly portions consist of rolling prairie (the latter more so than the former), in places somewhat densely covered with poplar and willows, which is more particularly the case on the westerly half. The central portion is fairly open prairie, with an occasional grove of second growth poplar. About twenty per cent of the whole area is covered with poplar and willows, the former up to 7 and 8 inches in diameter. The only timber found is poplar, some of which is suitable for building purposes and much of it for fuel. There are many ponds and marshes in the southerly half which might be available in dry seasons for hay meadows, but are this season filled with water to overflowing. However, the growth on the upland is so luxuriant that any quantity of hay might be cut there. Much of the water in the southerly part of the township is impregnated with alkali, the ponds of that character being generally open and not surrounded by any bushes, whereas those that are surrounded by a fringe of willows or poplar invariably contain sweet water, but being only surface water none of it is of a permanent nature. A watercourse formed many ages ago contains only standing water, no current being perceptible. It forms a ravine or coulee, with banks varying in height from a slight elevation up to about 30 feet, and traverses the northeast corner of the township, entering on the northeast corner of section 32, and leaving again on the southeast corner of section 24. The bottom of this coulee is of a very boggy nature, and contains but few places where teams may be driven safely across. The best and easiest crossing is on section 32, where the banks are elevated but a few feet above the surface of the water, the water there being about 15 to 18 inches in depth. No water-power is available in this township. The climate as experienced during the past season was moderate, but exceedingly damp, with no extreme of summer heat and cool nights. For fuel there is sufficient poplar available that may supply incoming settlers for some few years. No coal of any description was observed, nor quarries or fixed rock; neither were there any minerals discovered. Game, such as prairie chickens and ducks of different varieties were seen in abundance; also some deer were observed.—*C. F. Miles, D.L.S., 1903.*

Township 42.—This township is easily accessible by trail from Wetaskiwin, the nearest station on the Calgary and Edmonton branch of the Canadian Pacific Rail-

way and about 80 miles distant therefrom. There are many settlers along this trail which has been graded in the worst places, and nearly all the creek crossings are spanned by bridges. The trail in fairly dry seasons is good enough to haul reasonably heavy loads over. The wettest parts of the trail is now avoided by going via Spring lake post office (Never-go-dry-lake). A store has recently been opened there which is only about 10 miles from the northwest corner of the township. The soil generally consists of a black loam varying in depth from 2 to 12 inches, underlaid by a clay subsoil which is more or less difficult to penetrate and which is also to a great extent the cause of so much surface water in this township. Most of the land may be rated as second class, it being to a great extent cut up by ponds and willow swales, more especially the southerly half of the township and the northeasterly quarter by alkaline ponds and marshes. The southerly half is also more or less densely covered by willow bunches and second growth poplar. Not much of the latter is available for either building or other useful purposes. Most of the meadows, where in former years, hay could be cut, were flooded this year, so that ranchers were compelled the past season to cut upland hay, which although perhaps more nutritious does not yield the same quantity per acre as the marsh meadows. In ordinary dry seasons the meadows would probably furnish sufficient hay. Taking it altogether it may be stated with a considerable degree of certainty, that this township is and will be in the future, better adapted for raising cattle, than for raising of cereals. There are two ranchers in this township at the present time, whose buildings and corrals are located in the northwesterly quarter. Between them they have about 800 head of cattle and they cultivate only sufficient ground to supply themselves with the necessary vegetables required for their own use. On my way in, early in November, they had disposed of 270 head of steers and were driving them in to Wetaskiwin, the nearest railway station, for shipment. Only one live spring was noticed in the whole township and is located on the northeast corner of section 30, in close proximity to the buildings and corrals of the ranchers. Their improvements consist merely of the most necessary buildings and enclosures to carry on their work economically. Their cattle graze principally in township 42, ranges 13, 14 and 15, during the open season, and in winter when the snow falls to any depth the cattle are all fed at the ranch. There is a great deal of standing water all over this township, every depression being full to overflowing, but I learn from the old timers that previous to the past four very wet seasons, little water was found except at the springs before alluded to. But a limited quantity of wood is available for the supply of fuel or for building purposes for prospective settlers, though I am informed that an inferior quality of lignite coal may be procured from the banks of Battle river about 10 or 15 miles to the southwest, also a limited quantity of building timber, such as poplar and to a smaller extent spruce. No stone or minerals of any description were met with, nor any fixed rock. Game, such as chickens and ducks is plentiful on account of there being so much water in the township. A trail traverses the township diagonally from the southeast to the northwest leading thence westward to Wetaskiwin on the railway and easterly to various ranches on Schultz lake and on Battle river.—*C. F. Miles, D.L.S., 1903.*

Township 45.—We left Wetaskiwin April 21, and took the Duhamel trail to Rosenroll (township 46, range 21, west of the fourth meridian), thence by Stony creek trail through township 46, range 20, to Driedmeat creek, which was crossed in section 14, township 45, range 19, just east of Heatherbrae. From Driedmeat creek we followed Iron creek trail to section 33, township 43, range 15, then struck across country in a northeasterly direction to the southwest corner of township 45, range 14. The trail from Wetaskiwin to Rosenroll and for several miles beyond was in very bad condition, the wagons in places sinking to the hubs in the mud. From there to Driedmeat creek the trail was much better, except at Stony creek, where the road descending into the ravine, through which the creek flows, was very soft. A snow storm which set in on

the night of April 22 and lasted all next day did not improve it, and caused a delay of a day. Another delay occurred at Driedmeat creek owing to high water and a strong current it being necessary to ferry the outfit across in punts; from Driedmeat creek the trail was good. A shorter route would be due east from Rosenroll, passing north of Quarrel lake and thence southeast around the head of Wavy lake, but this trail was reported impassable. The soil in this township averages from 2 to 10 inches of black loam with a clay or clay loam subsoil and rates second and third class. There is more or less stone on nearly every section, but this appears to be all on the surface as none was found in digging the pits excepting at the northeast corner of sections 6 and 35, and at the quarter section post on the north boundary of section 12, where the subsoil was gravel. I would consider this township suitable for mixed farming. The surface is undulating prairie, with scattered clumps of willow brush and bluffs of small poplar. There are numerous sloughs and swales and in these and all low wet places there is considerable alkali; about one-third of the township is timbered with small poplar from 2 to 4 inches in dimaeter, in scattered bluffs principally in the southwest third of the township. This is fit only for fuel and fencing, there being no timber in the township large enough for building purposes. The grass in the sloughs is very coarse and unfit for hay, while that on the high ground in such places as are sufficiently free from stone to allow a mower to be used appears to be too short, although in a wet season it might possibly grow high enough to be worth cutting. There is no permanent supply of water in the township excepting in the northeast quarter of section 13, where Iron creek touches the boundary. The water in the sloughs is strongly alkaline and in the summer must be totally unfit for use if the sloughs are not dried up. There is no water-power of any description. The climate at this time of the year is extremely variable, one day being bright and warm and the next very cold. On the night of May 7 there was a hard frost which caused ice a quarter of an inch thick to form over the sloughs; on the 8th and 9th snow fell. The prevailing wind was from the north and northwest; I cannot say any thing as to summer frosts. The only fuel obtainable is small willows and poplar found mostly on the south and west portions of the township; should the township become settled the supply unless conserved will last but a short time. No indications of either coal, lignite or peat were seen. On the northeast quarter of section 13 on the banks of Iron creek is an out-crop of fine-grained limestone, but owing to position it was not possible to ascertain its extent. No minerals were noticed. No large game was seen, but feathered game is very abundant, such as prairie chickens, geese and ducks.—*Hugh McGrandle, D.L.S., 1903.*

Township 46.—For details of route, see notes of township 45, range 14. The soil is 2 inches to 10 inches of black loam, with clay subsoil. Undulating prairie very stony, with numerous willow swales. Sections 1 to 8 and 28 and 33 have scattered bluffs of poplar from 3 inches to 5 inches in diameter. There are no hay meadows, but a coarse grass grows in the shallow sloughs, mostly in the eastern part of the township. A small alkaline stream crosses the eastern part of sections 36 and 25, flowing in a southeasterly direction, also a small water course passes through 11, 12 and 1 in a southeasterly direction. No permanent supply of water. The weather in the first half of June was variable, dry with high winds, northwest winds prevalent. There was a white frost on the morning of the 9th instant. A very limited supply of poplar for fuel is available in the northern portion of the township. No coal or lignite was observed and no stone quarries, but there are loose scattered boulders. No minerals of economic value were found. No large game, but small game such as rabbits, ducks, geese and grouse is plentiful.—*Hugh McGrandle, D.L.S., 1903.*

Township 47.—This township as well as township 48, range 14, can be reached from Wetaskiwin by the Battleford trail. The soil north of the large coulee in the township is well adapted for cultivation, as well as the remaining portion comprising sections 3, 4, 5, 6, 7, 8, 9, 17 and 18, and can be utilized as grazing land. About half

a mile on both sides of the coulee, the land is very stony. The bottom of this gully resembles the ancient bed of a river and is paved with stones. When rain is abundant a creek runs into it towards the southeast. A few ponds and hay marshes are found on sections 15, 28, 29, 30, 31 and 33. The water is good in every one of them. The marshes produce a large quantity of very good hay and there are also a good number of sloughs. There is no water-power in the township. Poplar bluffs containing timber varying from 3 to 5 inches in diameter and rather small for building are found on sections 17, 18, 19, 20 and 29. This township is mostly prairie and bluffs. The eastern portion is undulating while western sections are rolling. The climate is good with no summer frost. There are no indications of coal, no stone quarry and no minerals. The timber found here is only fit for fuel, and is scattered all through the township. A few deer, porcupine, foxes, prairie wolves, badgers and hares are found. The feathered game consists of geese, ducks of different species, partridges and prairie chickens. This township presents a very fine aspect, with its different bluffs and high ridges. There will be no difficulty in making roads in any direction through this township. No doubt, settlers will find it profitable and agreeable to locate here.—*J. B. Saint-Cyr, D.L.S., 1903.*

Township 48.—This township can be reached from Edmonton or Wetaskiwin by the Battleford trail. There is also a road from Edmonton via Fort Saskatchewan, and Vegreville, but this road starts from Wetaskiwin. The soil of the western portion of the township is well adapted for farming, the remainder is mostly composed of a few inches of black sandy loam resting on hard clay and very stony in many places. As grazing land, it is fair. On sections 6, 7 and 8, there are bluffs of green poplar varying from 3 to 5 inches in diameter. The rest of the township is prairie and bluffs. Large hay marshes are found on sections 5, 12, 15, 17, 18, 22, 23 and 25. The sloughs are very numerous in this township. Hay is abundant in every one of these marshes, and good water is found in them; very few sloughs contain alkaline water. There is a good sized creek crossing sections 13 and 23, flowing north from one marsh to another. There is no water-power in the township. The climate seems to be good with no summer frost. Poplar for fuel can be procured from the western part of the township. There is no coal, no stone quarries and no minerals. The game found consists of a few deer, foxes, prairie wolves, porcupines, badgers and hares. The feathered game is mostly wild geese, ducks, partridges and prairie chickens. The Battleford trail crosses this township from east to west, about a mile south of the north boundary of sections 31 to 36. The country is generally rolling all through the township; good roads can be made in almost over any direction. The poplar found here is hardly large enough to build with, and is only fit for fuel.—*J. B. Saint-Cyr, D.L.S., 1903.*

Range 15.

Township 36.—The surface is principally undulating prairie, with deep ravines (or dry watercourses) heading eastward towards the lake. There is a flat from 40 to 60 chains in width lying along the west side of Sullivan lake in this township. It is considerably cut up with dry watercourses, but the soil is fairly good. Along the rim (west of this flat) there appears to have been a large quantity of coal burnt at some period, as the surface is of burnt clay piled up in all shapes from 30 to 80 feet high. The soil is mostly clay loam, with very hard clay subsoil, and is suitable for mixed farming or ranching. No timber worth mentioning. Some willow and young poplar along the ravines and rim. The most readily available fuel is poplar timber 8 or 10 miles to the northwest. I noticed some outcroppings of coal on the northeast quarter of section 19, but I believe coal could be found all along this rim described above. There is a creek of fresh water running through the southwest corner of the township, which apparently goes dry in dry seasons, with the exception of the deep holes along it.

There is fresh spring water soaking out of the banks of these ravines, but the water in Sullivan lake is no good. It is just like Gough lake, clay coloured and alkaline. There is plenty of good upland hay, but there are not as many hay sloughs in this part as there are in the vicinity of Gough lake. The east boundary of section 7 runs through a good sized slough which lies in the southeast quarter of 7 and the southwest quarter of 8, and another large one in the southwest quarter of section 6. There is no water-power, ore, stone quarries, or anything of marketable value except the above described outcropping of coal. The climate is similar to any other section of Alberta. The first frost was in September. Large game is scarce. Some coyotes and porcupine, but any amount of geese, ducks, prairie chicken, snipe, plover and some swans. This township (or Sullivan lake) can be reached by a fair road from Blackfalds station on the Calgary and Edmonton Railway. This trail runs east on the north side of Red Deer river and crosses Tail creek near its confluence with that river, from there bearing a little south of east to the north arm of Sullivan lake.—*A. McFee, D.L.S., 1903.*

Township 37.—This township is easily reached, as the main trail from Red Deer to Battleford passes through the northerly half. The soil in the northerly portion is a good black sandy loam, and is suitable for agricultural purposes. That in the middle portion is a mixture of black loam and hard clay, and ranks as second class land, while the land included in the lower portion is entirely unfit for agriculture, and on account of the poor grasses is not much good for grazing purposes. The surface is open rolling prairie, with bluffs of poplar and willows in the northeast quarter. The timber is small poplar and only fit for fuel. Hay is found around the sloughs. Fresh water can be had from a few small creeks and from the sloughs. Fair water can be obtained from the lake on the easterly boundary. Sullivan lake, which extends about a mile across the southern boundary, contains poor muddy water. There are no rivers, waterfalls or water-powers in the township. Coal can be easily obtained along the banks of a small creek running southwards through sections 19, 18 and 7. No other minerals or stone quarries were noticed in the township. Ducks, geese and prairie chickens are in abundance around the lakes.—*Joseph A. Carbert, D.L.S., 1903.*

Township 38.—This township can be conveniently reached, as the main trail from Red Deer to Battleford passes through the southeasterly portion. The soil is a good black sandy loam, varying in depth from 6 to 10 inches, with a good clay subsoil, and is suitable for agriculture and grazing purposes. The surface is mostly rolling prairie with bluffs of poplar throughout the township. The timber is small poplar and is only useful for firewood. Good hay is found around the numerous sloughs. Water is found only in the sloughs and a lake which enters the township in the southeast corner. There are no rivers, falls or rapids in the township. Very little wood is available for fuel, but abundance of coal can be easily obtained in the adjoining township south. No stone quarries or minerals were found in the township. Ducks, geese and prairie chicken abound around the lake and sloughs.—*Joseph A. Carbert, D.L.S., 1903.*

Township 39.—The railway can be reached from this township either by going south seven or eight miles to catch the trail to Blackfalds or by following the track which passes by Stocking and Travers' ranch and goes west towards Lacombe, passing through the Willow creek settlement. Or again, by following direct on the correction line, where, however, there is no track, to the intersection of the trail to Blackfalds on section 36, township 38, range 20. This correction line offers no impediment to travel. The northern part is isolated from the remainder by the Paint-earth creek, which is actually crossed on a bridge situated on the northwest quarter of section 23, facing Whitelock's ranche. South of Paint-earth creek there is only one place north of section 6 where it is possible to cross with wagons or even horses, the branch of this creek which comes from the south, and that place is on section 18. North of the valley of the Paint-earth there are some extensive prairie patches, but south of it timber bluffs occupy some space. Timber is comparatively plentiful in this part of the township.

The valley of the Paint-earth, 200 feet deep, is nothing else than a sea of mounds from 30 to 100 feet high, as can be seen by the sketch of the township; it is cut by a number of coulees, which make communication difficult. The timber is mostly poplar and willows, with some small birch and a few spruce in the valleys of the branches of the Paint-earth. Hay was good all over the country. The water in the creek and in the sloughs in the township was good, but in dry seasons the whole of the sloughs and streams would dry up. No water-power exists. Climate is good. There is plenty of fuel for a few years from the bushes in the township, and there is coal on section near the track going to Whitelock's. It was on fire this summer. I have seen no stone nor any minerals of value. Prairie chicken and ducks, a few stray antelopes or deer and some wolves are the only game to be found. Of course, there are many good patches of first class land in this township, but outside of the most southern part its broken surface will for the present be a drawback to the settling of it, and yet I have seen good farming done in worse places than this, and I am far from believing that one day this township will not be one of the prosperous ones of the region.—*George P. Roy, D.L.S., 1903.*

Township 40.—The best route for reaching the township is by starting from Wetaskiwin and travelling by the road passing by Meeting creek. The road is not in good condition. The soil is fairly good and is here classified as first, second, third and fourth class. The greater part, however, is broken by gulches and ravines running from Battle river. The soil is suitable for either farming or stock-raising, especially the latter. The surface of the township is much broken by the valley of Battle river and tributary gulches and ravines and also to some extent by Paint-earth creek. The southwestern corner is comparatively open and the remainder thickly covered by bluffs of poplar. The timber on the high ground is small and only suitable for firewood, but a considerable amount of good building timber, both spruce and poplar, can be obtained along the river. There are a number of good hay sloughs and meadows scattered over the township, affording good wild hay. The surface swamp water is fresh, but probably not permanent. Most of the springs in the ravines are alkaline. Battle river traverses the whole township. It is one and a half to two chains wide and from three to ten feet deep. The current is about a mile and a half per hour. The adjacent lands are not liable to floods from the river. Natural water-power is not available and I should judge that it could not be developed by the construction of dams. The climate is pleasant. No summer frosts were observed. One good coal seam, six feet wide, was observed in the northwest quarter of section 14. Indications of coal were seen elsewhere along the banks of Battle river and good seams could probably be opened up. Sandstone and limestone show along the bank of the river. Clay ironstone was also seen in the same locality associated with the lignite coal. Ducks, geese, swans, sandhill cranes and prairie chickens are plentiful and there are also quite a number of deer.—*Thomas Drummond, D.T.S., 1903.*

Township 41.—This township is comparatively easy of access by a fairly good trail from Wetaskiwin, a station on the Calgary and Edmonton Railway, and is about 85 or 90 miles distant from that town. The soil is generally first class, consisting of a black loam varying in depth from 4 to 12 inches, with in most places, a clay subsoil, excepting in the northern central part of the township where alkaline clay appears to predominate. Judging by the growth of the grasses and young trees, the soil must be considered fairly productive. The land is fairly level and consists in part of open prairie (more particularly confined to the central northern portion) and prairie dotted with numerous groves of second growth poplar and willow, which are most numerous and dense on the southeastern quarter of the township. There are a great many ponds, those in the northerly half being strongly impregnated with alkali. There the land rises slightly to the east and the west, the highest land being apparently the most productive. Considerably more timber exists in this township than in the one to the

north, but the larger timber, although still standing, has been nearly all fire-killed and a new growth has sprung up, not yet attaining its full size, probably not exceeding 4 or 5 inches in diameter, nearly always intermixed with a dense growth of willows. I would estimate the wooded area of this township to be about 15 or 20 per cent of the whole. Depressions in the soil, marshes and meadows and ponds were all full to overflowing. In dry seasons, many of the present ponds may make good hay meadows, but at the present time contain too much water to be utilized for that purpose. Good hay can be cut on the high lands, though not in such quantities as the hay meadows might yield. As regards climate, the season was too unfavourable to justify me in stating anything definite owing to the heavy rains that prevailed during the greater part of the summer. The first frosts were experienced in the beginning of September in this vicinity, but some heavy hail storms that we had near the end of July, while in the hills, were not noticed here. The dry standing timber (poplar) may be utilized as fuel for a limited period, after which lignite coal may be procured from a seam on Battle river a short distance south of this township. Very little stone of any kind was met with and no fixed rock of any description. Game, such as prairie chickens, ducks and rabbits abound. Deer are also said to be here, and in fact were seen by some members of my party in the adjoining township to the east.—*C. F. Miles, D.L.S., 1903.*

Township 42.—This township is easy of access by a trail from Wetaskiwin, a town and station on the Calgary and Edmonton Railway, about 80 miles distant by trail via Heatherbrae, 40 miles distant, a small settlement containing a store, a blacksmith shop and one hotel. Along the trail numerous settlers are to be met with. The soil is first class, consisting of a black loam varying to a depth of 12 inches and generally underlaid by a clay subsoil. This clay subsoil varies greatly in many instances, it may be what is commonly called hardpan, or it may be clay that might be worked comparatively easily by exposure to the air for a certain length of time, however, the nature of the grasses and growth of pea-vine indicate sufficient elements in the soil to produce good crops under certain conditions. This township is fairly level or flat, more particularly is this the case with the central southern half, a considerable portion of which is covered by ponds and marshes at this time of the year. Towards the east and west the ground is rising gradually, the higher land being covered by numerous groves of young poplar, the old ones, fire-killed, being left standing in many places. Few, if any, green trees of greater dimensions than 8 inches in diameter were seen. Ponds surrounded by dense willows are very numerous. Probably ten per cent of the whole area is covered by second growth poplar and willows. Although at the time of my survey every depression was filled to overflowing with water, making it difficult to ascertain the township's facility for supplying hay, yet I am under the impression that in ordinary seasons plenty of hay may be procured from both high and low lands. This being an exceptional season, I learned, and saw from my own point of view, that the ponds, commonly called sloughs were too full of water and that therefore, both the farmers (settlers), and ranchers were compelled to cut their hay from the high land. As an indication of tall grass, I may say that I had occasion to cross several marshes, one on the north boundary of section 9 and the other on section 14 (east boundary), where the grass in about 5 feet of water nearly hid a wagon driven through, and completely hid the chainmen chaining along the former line. Water at time of my survey was very plentiful, although I am informed by a rancher that up to last summer, all the ponds and sloughs were dry. The water found on the higher lands was fairly good, whereas that in the flats was more or less alkaline. A large marsh nearly covers the greater parts of sections 23 and 14 and portions of sections 11 and 12. Also section 9 is mostly covered by water at the present time, and to a less extent sections 3 and 4. A small lake covers part of section 8, which I traversed, but I am under the impression that it may not be permanent. No running water was found, except an overflow from

one pond to another. After about two months' experience I would consider this township better adapted for grazing purposes than for the raising of cereals, but the past season having been an exceptional one, it is possible future seasons may be more favourable for raising grain crops. No frost was experienced until the beginning of September, but there were several heavy hailstorms in July and August. For a year or two settlers may procure sufficient dead timber (fire-killed), but ultimately the fuel supply may be brought from some coal seams said to be exposed on Battle river, about 7 or 8 miles to the south of this township. Very little stone of any kind was met with, and no fixed rock of any description. Game, such as ducks and prairie chickens is very plentiful. Deer were also seen.—*C. F. Miles, D.L.S., 1903.*

Range 16.

Township 1.—This township is better adapted for grazing than farming as the soil is a light sandy loam, and the surface rolling prairie. It is watered on the south by Red creek and on the east by Macklin lake. There is no timber or scrub in the township.—*G. J. Lonergan, D.L.S., 1902.*

Township 36.—The alluvial soil in this township is clay or black loam, and the subsoil very hard clay. It has a heavy coat of grass. The township is suitable for stock raising or mixed farming. There is no timber worth mentioning; the sloughs have a fringe of young poplar and willow around them and there are some scattered clumps of willows all through the township. The surface is rolling or undulating. Upland hay could be cut in almost any part of it, during these past wet seasons. There are also a number of small hay sloughs or meadows that are at present filled with water, but a good many of them could be easily drained so that they would produce a large quantity of good blue joint and slough hay. There is a creek running through the eastern part of the township which empties into Sullivan lake, and has a few small tributaries that run in coulees from 10 to 4 feet deep and are fed by small springs along the banks of these coulees. They all take their rise in this township and have good water in them but not permanent, excepting in holes. There are no water-powers. As for fuel there is a coal seam on section 8, three feet thick, but no wood worth mentioning nearer than eight miles in a northerly direction. The only stone I noticed was a few granite and sandstone boulders along the coulees. There are no minerals of any value. Small game is plentiful such as ducks, geese, prairie chickens, snipe, &c. The best route to reach this section of the country is by a fair trail from Blackfalds station on the Calgary and Edmonton Railway, on the north side of Red Deer river, which runs eastward crossing Tail creek (which has a good bridge over it) near its confluence with that river, then runs a little south of east, close to Sullivan lake. The first frost I noticed in this section of the country was in the last week in September. I noticed signs of hail storms in places. The climate seems to be similar to the rest of the district.—*A. McPhee, D.L.S., 1903.*

Township 37.—This township adjoins the main trail running from Lacombe and Red Deer easterly to Battleford. The soil is a very hard clay with scarcely any depth of mould and is classed as third class land, and is not suitable for agriculture. In wet seasons this land would be good for grazing purposes. The surface is open rolling prairie. There is no timber in the township. A considerable quantity of hay could be procured from the numerous sloughs. The hay sloughs furnish good water. A creek with a good current and about 10 to 12 feet wide and from 2 to 4 feet deep runs easterly through sections 21, 22, 23, 24, 25, 26 and 27, and contains good drinking water. There is no water-power in the township and no timber or fuel, but soft coal can be easily obtained in adjoining township to the east. No stone quarries or minerals were found in the township. Game appears to be scarce. No settlers or squatters were found.—*Joseph A. Carbert, D.L.S., 1903.*

TOWNSHIPS WEST OF THE FOURTH MERIDIAN—RANGE 16.

Township 38.—This township can be reached by a well travelled trail which runs easterly from Lacombe and Red Deer stations on the Calgary and Edmonton brach of the Canadian Pacific Railway to the Nose and Neutral hills, and thence to Battleford. The soil in this township is a bleck sandy and clay loam, varying from 4 to 10 inches in depth, with a good clay subsoil, and is ranked as second class land. Vegetation is good. Although now used for grazing purposes a large portion would be suitable for agriculture, and a desirable place for settlement. The surface is undulating prairie, with scattered bluffs of second growth poplar and willow. There is no timber in the township. Hay could be cut from mostly all the sloughs and throughout the township. Water is mostly fresh, and can be easily obtained from the numerous hay sloughs, also from Bigknife creek, which runs through the northwestern portion of the township. The land is not liable to be flooded. There is no water-power in the township, and no wood of any account, but soft coal can be obtained in the adjoining townships. No stone quarries or minerals were found. Game is scarce. There are no settlers in the township.—*Joseph A. Carbert, D.L.S., 1903.*

Township 39.—This township is mostly prairie, with quite a few willow and poplar bluffs, which, however, are neither numerous nor extensive enough to be a drawback to the settlement of the country. The soil, mostly a bed of 8 to 10 inches of black loam over a clay subsoil, is fairly good, although inclined to be very hard in dry seasons. The surface is mostly rolling, with knolls here and there, especially in sections 8 and 9, where the ground is slightly hilly. This township is the starting point of a certain number of coulees, which though of very little consequence, in the south part of the township get larger and deeper as they go northward; so much so that sections 25, 26, 27, 34, 35 and 36 may be considered as broken and hilly country, especially section 36. The timber, mostly poplar, is of very little consequence, measuring hardly 6 or 7 inches in diameter. However, building material can be found on the branches of Paint-earth creek, situated in township 39, range 15, where quite a few spruce exist. The water in the sloughs is generally good, as well as in the creeks which flow through the township. Ducks and prairie chicken are about all the game in the country, although I have seen a couple of antelope, but it appears that this is an exception. At the present time, of course, coyotes are numerous. There is no regular trail in the township, but there is a track to the main travelling trail going to Red Deer, which crosses the township south of this one, and by going west it is easy to find the track going to Willow Creek settlement, from which there is a good trail to Lamerton and Lacombe.—*Geo. P. Roy, D.L.S., 1903.*

Township 40.—The best route for reaching this township is by way of Wetaskiwin, but the road is not in good condition. The soil as a whole is fairly good, and it is booked mainly as first and second class. The best soil is that which is more or less covered with scattered bluffs of poplar and willow. It grows the ordinary vegetables and garden products, such as potatoes, turnips, cabbage, cauliflower, lettuce, &c., and also wheat, oats, barley and rye. It is suitable either for farming or ranching. The surface is fairly level, except along or near Battle river, where it is cut up more or less by ravines and coulees. About one-half of this township is open, and the remainder is covered with bluffs of poplar. The southwestern portion is open prairie. The timber is poplar, and on the high ground it is all small and only useful as firewood. Large poplar, 8, 10 and 12 inches in diameter is found in the valley of the river. Hay swamps, sloughs and meadows are plentiful, and they are scattered more or less over the whole township. The surface water in swamps is plentiful and fresh, but is probably not permanent. The following streams traverse a part of the township: Paint-earth creek, Cutknife creek and Battle river, and there are several permanent springs. Paint-earth creek traverses the full width of the township along the south. It is about 10 feet wide and 3 to 6 in depth, and has a sluggish current. The water is good. Cutknife creek cuts into the township along the north boundary for a short distance. It

is about the same size as Paint-earth creek, but the current is swifter and it has a greater volume of water. The water is fresh and good. Battle river averages one and a half to two chains in width, and it is from three to ten feet in depth. It has a current of about one and a-half miles an hour. The land is not liable to be flooded by these streams. I should judge that the fall is not sufficient to develop water-power. Poplar is the available fuel, and it is scattered more or less over the township. Indications of lignite coal and clay ironstone are found along the cut banks, but no workable seams were discovered. Impure limestone and soft sandstone also occur along the river. Ducks, geese, sandhill cranes, swans and prairie chickens are plentiful, and there are also a few deer, locally known as jumping deer.—*Thomas Drummond, D.T.S., 1903.*

Township 59.—The trail from Edmonton to Saddle lake runs through the southeast corner of this township. The soil is generally sandy, though there is a percentage of it with clay subsoil. The sections from 1 to 12 are of little value, being mostly sandhills and muskegs. A belt of good land crosses the township from sections 10 to 30, and is suitable for mixed farming. About 50 tons of hay could be cut along the river, besides smaller patches here and there all through the township. About one-tenth of the township is open undulating prairie; three-tenths of it is covered with heavy scrub, and the rest is covered with cottonwood, poplar and jackpine; the latter prevails in the southern part. The timber has no commercial value except for the use of settlers. The White-earth river is a stream about 80 links wide, 3 feet deep, and flows at the rate of about 4 miles an hour from the northwest to the southeast corner of the township in a deep valley. Another stream crosses sections 34 and 27 to join the White-earth river, and is about 35 links wide, 3 feet deep with a current of 3 miles an hour. Two other smaller creeks join the White-earth in the township. All the water is fresh. There are no water falls. There is good fuel all through this township, consisting of poplar, cottonwood and jackpine. There is no coal, no minerals and no stone quarries. There is very little game, except a few wild chickens.—*J. L. Côté, D.L.S., 1903.*

Range 17.

Township 35.—The route for reaching this township is by a well-beaten trail, which runs eastward from Blackfalds station (on the Calgary and Edmonton Railway) along the north side of Red Deer river, crossing Tail creek near its confluence with that river, then in a southeasterly direction, keeping to the north of Gough lake. Soil is black and clay loam, with very hard clay subsoil. This township is suitable for mixed farming or ranching, as there is an abundance of grass. There is some poplar timber on sections 19, 29, 30, 31 and 32, in patches or bluffs (none of it over 7 inches in diameter and a lot of it fire-killed), intermixed with heavy willows. The rest of the township is chiefly open prairie, excepting the numerous sloughs and pot-holes that are fringed with willows and young poplar. There are no permanent streams in the township and all permanent lakes or ponds are filled with brackish or alkaline water; all pot-holes and sloughs have at present from 3 to 4 feet of fresh or rain water in them. There is no water-power. As for fuel, there is some dead poplar about the northwest corner of the township and a seam of coal on section 8, township 36, range 16. The only stone I noticed was sandstone and granite boulders around the lakes and ponds. I discovered no minerals. Small game is plentiful, such as geese, ducks, chicken, crane, snipe, &c. Any amount of upland hay could be cut during the past four or five wet seasons, but not in the meadows, on account of their all being filled with water from 1 to 4 feet deep. There are large hay sloughs or meadows situated on sections 10, 14, 15, 16, 25, 26, 33 and 34, besides several small ones scattered over the township, where in dry seasons any quantity of fine blue joint and slough hay

could be got. The climate seems similar to the country about Edmonton. The first frost I noticed was in the last week of September. There is a small portion of the northwest quarters of sections 19 and 31 and of the northeast quarter of section 32 in Gough lake and a portion of sections 35 and 36 in Cutbank lake. This last is a crooked lake of over 4 miles of shore line, and is fed by springs that lie in section 1, township 36, range 17, and sections 7 and 8, township 36, range 16. It has a small outlet flowing into Gough lake through the southern part of township 36, range 17. The lake has 10 feet of brackish or alkaline water and has cut banks from 3 to 15 feet high.—*A. McFee, D.L.S., 1903.*

Township 36.—The southwest corner of the township is considerably cut up by Gough lake. There is a boggy, sluggish creek of fresh water with a current of about 10 or 15 chains per hour which takes its rise from some lake situated in the next township, to the north, flowing south through sections 33, 28, 21 and a portion of 16, 15 and 10 and across 9, emptying into Gough lake in 8 and which flows the whole distance through and about the centre of a large hay marsh from one-half mile to one and a half miles wide, which is at present covered with from 1 to 3 feet of water, and has a strong growth of fine blue joint hay all over it. It is flooded on account of the water being so high in Gough lake during the last few years. The best route to reach this township is by a road that runs east from Blackfalds station on the Calgary and Edmonton Railway, along the north side of Red Deer river and crosses Tail creek near its confluence with that river. From there by a trail running in a southeasterly direction to the north end of Gough lake. The top soil is black on clay loam, with very hard clay subsoil, and is suitable for mixed farming or stock-raising. Surface is mostly undulating prairie, with no timber, excepting some willow around pot-holes and sloughs. Any quantity of upland hay could be found and I would judge in dry seasons thousands of tons of blue joint hay could be cut on the above described hay marsh. Cutbank lake situated in sections 1 and 2 in this township, and 35 and 36, township 35, range 17, has about 10 feet of the same kind of water as Gough lake; (clay coloured and alkaline). There are no water-powers, minerals or stone quarries; but around the lakes there is a quantity of granite and sandstone boulders. The first frost I noticed in this section of the country was in September. Timber for fuel can be procured some 8 or 10 miles to the north, and there is a coal seam on section 8 in the next township east. Large game seems to be scarce, the largest wild animals I have seen being the coyete and porcupine, but small game is in abundance, such as prairie chickens, geese, swans, snipe, plover, &c. The climate seems similar to any other part of this section of Alberta. What ranchers are in this section of the country have not as yet started to raise any grain, but I have seen some fine potatoes and turnips that were raised here.—*A. McPhee, D.L.S., 1903.*

Township 37.—The main trail from Red Deer to Battleford passes along the northerly boundary of this township. The soil is mostly a hard clay substance, the alluvial soil having been burned off by repeated fires. The upper one-third of the township is a black loam ranging from 6 to 12 inches in depth, with a clay subsoil, and is ranked as second class land. The lower two-thirds is of a hard clay nature, with some alkali spots, and ranks as third class. The township is only suitable for grazing purposes. The surface is open, undulating and rolling prairie. No timber of any size or quantity was found throughout the township. There is an abundance of good hay around the numerous hay sloughs. Two large lakes are situated in this township. The one in the western portion, called Island lake, is shallow with small islands, but the water is very muddy and alkaline, and entirely unsuitable for drinking purposes. The other called Shooting lake occupies the more central portion of the township. It is a deeper lake than the former one and contains good clear fresh water. There are no rivers, falls or rapids in the township. Fuel is especially scarce; coal, however, can be had in the adjoining township to the east. There are no stone quarries or

minerals in the township. Ducks, chickens and geese are found in abundance around the lakes.—*Joseph A. Carbert, D.L.S., 1903.*

Township 38.—This township is reached by the trail coming from Blackfalds, which passes through the township south of this one. It is also reached by the trail from Lacombe, through the Willow settlement, in township 39-18, as I have noticed people travelling east from that point. These roads are fairly good, except during long and excessive rains. The soil is generally either a thin coat of black loam or sandy loam on a clay subsoil, very much inclined to bake, and into which wooden posts and even iron posts are hard to drive. The township is mostly prairie, with scattered bluffs of small poplar and willows of no consequence either for fencing or for building purposes. The water in the sloughs is generally good, as well as that in Bigknife creek or its branches, which have their source within this township. This creek is about 4 feet wide and 3 feet deep where it crosses the correction line. There is no power available on any of the creeks. Climate is as good as in any part of this region. I did not see any available fuel in the township, but coal can be had either from Contentville, at the bend of the Red Deer, or from section 19, township 38, range 15. There were no stone quarries nor any minerals. Game consists of prairie chicken and a few ducks. There was a shack built on the southwest quarter of section 34, but I did not happen to meet the squatter to whom it belonged, and I have heard that he has left the place. There are no ranchers in the township as slough hay is scarce, although the upland hay is good in these rainy seasons.—*Geo. P. Roy, D.L.S., 1903.*

Township 39.—This township is mostly rolling prairie, with scattered bluffs of poplar and willows; not a great many sloughs. It rises from the south line towards the centre, and from there slopes to the north. On the two tiers of sections from 12 to 18 and from 19 to 24 the valley of Bigknife creek, which crosses the township diagonally, is bordered by high banks 40 feet high, very steep in some places, so much so that with the buckboard places to reach the bottom are far apart. Bigknife creek is a stream about 4 feet deep. 10 feet wide, and in the part I just mentioned the banks are about 10 feet high. The soil is fair, but in the centre I was dubious as to the classification; it is not altogether second class soil. Settlers were flocking into the western half when I completed the survey. I noticed a shack on section 18, and a house and barn near the line of sections 30 and 31. However, the settlers made no declarations. The township is reached from Lacombe by the road passing through a growing village about the centre of township 39, range 16. The trail from Blackfalds and Red Deer runs through township 37, about 7 or 8 miles to the south. However, the main thoroughfare of this country in the future will, I believe, be the road on the correction line, which offers no serious impediment to travel and is the most direct line to the railway.—*Geo. P. Roy, D.L.S., 1903.*

Range 18.

Township 28.—This township is situated about 50 miles from Gleichen. The road is fair; rather hilly but dry. The soil is hard clay and produces good grass. The surface is rolling prairie, cut up by deep ravines. There is no timber nor hay nor minerals. It is well watered by the Red Deer, which would be navigable for small boats. Willow creek, about 20 feet wide and 1 foot deep, contains good water. The climate is apparently dry. Coal for fuel will probably be found along the banks of the Red Deer. The only game I saw was grouse.—*J. E. Woods, D.L.S., 1903.*

Township 35.—A large portion of this township lies in Gough lake, a shallow lake with clay coloured alkaline water, having no outlet I could discover, but with a couple of streams of fresh water emptying into it. There is another small lake in the northwest quarter of section 7 which has the same kind of water (clay coloured and alkaline). A portion of sections 18, 19, 20, 29 and 30 are rather rough and hilly, with a

great number of pot-holes fringed with willow. The rough portions of these sections may be described as follows: Beginning on the west boundary of section 30, running south to near the centre of section 18, then in a northeasterly direction to a point near the lake in the southwest corner of section 28, thence to the place of beginning. The best route to reach this township is by a trail which runs eastward along the north side of Red Deer river from Blackfalds station on the Calgary and Edmonton branch of the Canadian Pacific Railway, and which crosses Tail creek near its confluence with Red Deer river, thence in a northeasterly direction over a fair trail. The country is open prairie with no timber, only some willow around the sloughs and pot-holes, and most of it is suitable for mixed farming or ranching. The only hay meadows in this township worth mentioning lie along the south boundary in section 1 at the south end of Gough lake, both blue joint and slough hay. Any quantity of upland hay could be got during these wet seasons anywhere in this part of the country. There is only one small stream in this township, which flows in a southeasterly direction through sections 32 and 29, and empties into the lake in 28. It is fresh water but not permanent. No water-powers, minerals or stone quarries in the township. The only stones I noticed were sandstone and granite boulders on the hills and along the lake shore. There is some timber in the township adjoining to the west, which is the most convenient fuel. Large game is scarce, but any amount of small game such as geese, ducks, chicken, plover, snipe, &c., is found. The soil is clay or black loam on top with very hard clay subsoil.—*A. McFee, D.L.S., 1903.*

Township 36.—The soil is mostly clay loam with very hard clay subsoil, in places it might be called hard-pan. Surface, open prairie with a great number of sloughs and pot-holes, fringed with willows and young poplar, and at present are all filled with water, but I would judge to be all dry in dry seasons; there is only one stream in this township with a couple of small tributaries. It runs through section 6 and the southwest corner of section 5, good water, not permanent, current ½ mile per hour, 5 feet wide, 1 foot deep, banks 5 feet high. Gough lake covers the greater portion of sections 1, 12, 13 and 24 and is a shallow lake with dirty alkaline clay coloured water, and low banks not over 5 feet high on any part of it with some sand stone and granite boulders along the shore, these being the only stones I noticed in the township. I saw no coal or minerals of any value and no timber worth mentioning. No water-power exists; small game is plentiful such as prairie chicken, ducks, geese, snipe and some swans. The east boundary of sections 5, 8, 23 and 27 runs through some fine meadows, with blue joint and slough hay, and there are a great number of grassy sloughs where large quantities of hay could be cut in dry seasons that have from 1 to 4 feet of water in them at present. A portion of sections 23 and 24 is liable to be flooded to the depth of 18 inches as there is 12 inches over it at present. There is some timber suitable for fuel on the east side of Gough lake, in township 35, range 17, west of the fourth meridian, and also a seam of coal on section 8, township 36, range 16, west of the fourth meridian. The northwest corner of the township is very rolling, the balance is mostly undulating and as a whole is suitable for stock-raising or mixed farming. The best route to reach this township for any part of Gough lake is by a well-beaten trail that runs eastward from the Calgary and Edmonton railway along the north side of Red Deer river, which crosses Tail Creek near its confluence with that river. From that point, there are two fair trails, one bearing southeast and the other more easterly. The nearest railway station is Blackfalds, but there are no trails connecting with Wetaskiwin, Lacombe, Red Deer and Innisfail. The first frost I noticed was in the last week of September.—*A. McFee, D.L.S., 1903.*

Township 37.—The main features of this township are the two large lakes in it, Lonepine lake in the northwest corner and Marion lake on the east boundary. Part of sections 31 and 32 are covered by Lonepine lake while the waters of Marion lake cover parts of sections 12, 13, 14, 15 and 22 and nearly the whole of 23 and 24 in which

the larger island which I surveyed is situated and then parts of 25, 26, 27 and 34. There are two smaller lakes, part of Beltz lake on section 30 and Hebert lake on sections 19 and 20. The township may be reached by the trail from Blackfalds running through township 38, range 18. There is also a trail running westwards towards Red Deer from Whiteside's ranch in section 17. The topography of the country shows no great irregularities. From the north outline, the surface slopes to the south to the bottom of the valley between Lonepine lake and Marion lake. From there, the ground rises gradually to the north line of sections 7 to 12 and beyond this it is either level or slightly inclined to the south. The soil in the valley between the lakes is not very good, the alluvial soil being generally thin, and the subsoil a hard clay inclined to bake. South of this valley for about two miles, the surface is strewn with large quantities of small boulders. These, however, are more scarce towards the southern part of the township. Only one rancher is settled in this township. The valley between the two large lakes is open prairie but outside of this, bluffs of poplar and willow are met with throughout the township, except in the southern part where only scattered bunches are seen. In Marion lake, there is a range of islands running southwesterly across section 24 and then south on section 13. These islands appear to be the summit of a ridge which divides the lake into two basins.—*Geo. P. Roy, D.L.S., 1903.*

Township 38.—This township for farming purposes is one of the best which I have surveyed this summer. The soil is fair and the surface slightly rolling; contains neither rough nor hilly places. It is reached from Lacombe, Red Deer or Blackfalds by the trail going through Coutanville at Tait creek, the said trail crossing the township in a southeasterly direction. There is quite an amount of brush and poplar up to 9 inches diameter in the two southern tiers of sections. Further north the bluffs are scattered and near the correction line they are few and small. Two ranchers were squatted on this township at the time of the survey, Jos. Harbison on sections 2 and 3, and Wells occupying M. Bennett's premises covering part of sections 8, 9, 17 and 18. About the time that the mounding of this township was completed the advance guard of some Swiss settlers appeared on the ground and finding the country to their I have not seen any quarries, minerals, water-powers or game.—*J. E. Woods, D.L.S.,*

Range 19.

Township 27.—This township is reached from Gleichen by a fair trail, rather hilly but dry; the distance is about 45 miles. The soil is principally clay with patches of black loam. It would be well adapted to farming if it could be irrigated, for the present it is only fit for grazing purposes. The surface is rolling prairie. There is no timber in this township, nor hay meadows. There are a few small creeks in the western part of the township running in deep ravines; they are all spring water. Whey lake on sections 9, 10, 15, 16, is alkaline. Two-bar lake on section 2 is apparently fresh water; these lakes are permanent ones. The climate is apparently very dry; it is quite probable there are summer frosts. On the north boundary of section 10 the pits at the quarter section are dug in lignite coal much weathered by exposure. I have not seen any quarries, minerals, water-powers or game.—*J. E. Woods, D.L.S., 1903.*

Township 28.—This township is reached from Gleichen by a fair trail, rather hilly but dry; the distance would be about 50 miles. The soil is a hard dry clay which would produce good crops with irrigation. The surface is all prairie with a few patches of willow and poplar scrub on the sides of coulees facing the north. This township is very badly broken up by deep coulees. by the valley of Red Deer river and the valley of Rosebud river, which are found 400 to 500 feet deep. They are generally formd by cut banks rendering travelling with horses

and wagons almost impossible. There is a little bunch of poplar and cottonwood fit for fuel where the north boundary of section 21 crosses Red Deer river. The township is well watered by the Rosebud and Red Deer rivers, the former in low water would not be more than 25 feet wide and mostly in pools in very dry seasons. The Red Deer appears to be navigable for small steamers. There are no water-powers, stone quarries, hay land or minerals other than coal. There are indications of coal all along the rivers and in some places seams are burning under ground. Most of the valley of the Red Deer is filled with hills and knobs of red shale coloured by the iron being oxidized during the burning of the underlying coal seams. There are a few deer along the river valleys and an abundance of prairie chicken. The climate is apparently very dry and winter sets in early.—*J. E. Woods, D.L.S., 1903.*

Township 38.—The surface of this township is rolling. The general incline of the ground is toward the south in the north part of the township, but in tiers of sections from 19 to 24 it rises and for the rest of the township it slopes to the south. The soil is good, being in most cases a heavy coat of black or sandy loam over a clay subsoil. There is quite a quantity of poplar and willow in the township. Large patches of prairie are met with, but sections 1, 2, 3, 10, 11, 12, are nearly all prairie. The trail leading to Blackfalds or Red Deer and Lacombe crosses the northern part of this township. Large hay sloughs occur throughout the township, but principally in the southern part. Part of the settlers belonging to what is called the Sioux colony are now established in this township and seem more than satisfied with their prospects.—*Geo. P. Roy, D.L.S., 1903.*

Range 20.

Township 27.—This township is much broken by numerous ravines which run into the valley of the Rosebud, a small stream about 25 feet wide at low water, but formidable at high water. This stream runs through the northern part of the township in a valley over 300 feet deep and over half a mile wide. A few poplar, cottonwood and spruce trees grow in the valley, but the remainder of the township is a rolling prairie covered with a luxuriant growth of grass. The soil consists principally of a very hard and compact clay which would apparently become friable with cultivation. Outcrops of coal seams are seen in several places along the banks of the Rosebud; although of an inferior quality it will become valuable for domestic purposes when the country is settled. This township is principally adapted to ranching, as there is good grass with fine water and good shelter for cattle. There are a few sections along the southern part of the township that would make good homesteads. There are three settlers in this township who are located on land previously surveyed. The nearest post office is about 20 miles to the west, but most of the mail is received at Gleichen, 40 miles to the south. There are no indications of any settlers coming to this township, probably on account of the ground being so rough, that it presents few attractions to the settler.—*J. E. Woods, D.L.S., 1903.*

Township 28.—This township is about 50 miles by trail from Gleichen; the road is rough, hilly and little used and on account of deep ravines it makes what seems to be endless detours. The soil is deep clay, dry and hard, but produces a fine growth of grass. The surface is all prairie with the exception of a few thick bunches of scrub on the slope of the coulees facing the north. There is no timber. The ranchers cut hay on the high land; it is principally bunch grass, rather coarse. Rosebud river runs through the southeast part of the township. It is a large muddy stream in high water, but in low water it is about 30 feet wide and 6 inches deep in the rapids. Most of the other small streams run dry in summer. Robinson lake on section 7 is apparently alkaline. The Rosebud could be dammed in several places and would create small

water-powers for individual settlers. The climate is very dry, with little snow in winter. Seams of lignite appear all along the bank of the Rosebud, it makes fair fuel, but it is impossible to give any information as to the extent of the seams without some excavation. Several bands of sandstone which might be available for building are exposed in the ravines. I have seen no minerals. Deer and grouse are abundant.—*J. E. Woods, D.L.S., 1903.*

Range 29.

Township 3.—The country is rolling and for the most part prairie. There are a great many bluffs of small poplar and willow, and in some places there is an amount of scrub and underbrush. The township is fairly well watered by Cottonwood creek in the western part and by Waterton river in the east. There are a number of sloughs of good water. This part of the country is suitable only for ranching, but for this it is well adapted. A number of new ranches have been started here recently and some fencing has been put up. The southwest corner of the township is on the side of a rough and wooded mountain and is of very little value.—*G. J. Lonergan, D.L.S., 1902.*

Township 8.—This township is hilly throughout with the exception of a few sections, in the southeast corner, adjoining Beaver creek where the surface is of a rolling character. This hilly surface is broken by ravines, coulees and passes varying from 50 to 250 feet in depth. This locality is prairie throughout with the exception of a few ridges adjoining the north outline where a few scattered jackpine of 20 inches diameter are to be found. The soil is a rich loam, but owing to its stony nature and uneven surface its fitness for agricultural purposes is reduced accordingly. No hay marshes of any extent are to be found in this township, but in compensation the grass is of good quality and abundant. A good trail leading to Cowley towards the southwest and across Beaver creek to Macleod towards the east, crosses this township on sections 12, 13, 14, 15, 16, 17 and 18. The principal stream worth mentioning in this township is Beaver creek. It flows south-southeast; is 4 feet deep, 30 links wide and runs at the rate of 4 miles per hour. In high water it overflows and floods a narrow strip of land in its valley. Owing to the numerous springs found in the hills and a few small streams, together with Beaver creek, the water supply of this locality may be considered as permanent. No water-powers exist nor can any be developed in this locality. The climatic conditions are those generally prevailing in the foot hills, including the noted high winds. Through lack of coal and the scarcity of timber the fuel supply is very limited in this township. No quarries or minerals of economic value were noticed during the operations. No game nor traces of such was found in the township. Concluding I may say that on account of the shelter afforded by the hills, the abundance and the quality of the grass and the permanent supply of water, this township is well adapted for ranching purposes.—*Louis E. Fontaine, D.L.S., 1903.*

Township 11.—The surface of this part of the township where the operations were carried on is hilly throughout. It is a sucecssion of ridges broken by deep ravines and small valleys. This broken surface is to be classed as prairie. A fairly good trail, leading to Claresholm crosses the township on sections 17, 21, 28 and 34. The soil is in general a light sandy loam on a clay subsoil, but owing to the broken and uneven surface its fitness for farming purposes is therefore of a limited value. No timber of any description is to be found in this township. No hay marshes are to be found in this locality, but there is an abundance of grass and it is very luxuriant. Two creeks having a good flow of water and with their courses nearly parallel and distant a mile and a half from each other cross this township in a northeasterly direction. This coupled with the numerous springs found throughout the township will

ensure a permanent supply of water. No water-powers are found in this township, nor can any be developed even by artificial works. The climatic conditions of this locality are those generally prevailing throughout the foot hills, including the noted high winds. Owing to the non-existence of timber and lack of coal no fuel can be procured in this township. An unlimited supply of timber for building and fuel purposes can be procured within a reasonable distance to the south and west. No minerals of economic value nor game or quarries were noticed during the operations. On account of the limited area of farming land, this locality would be best adapted for ranching purposes for it affords good shelter for the cattle. An abundance of grass is to be found everywhere and the supply of water is unlimited.—*Louis E. Fontaine, D.L.S., 1903.*

Range 30.

Township 4.—The country generally is rolling prairie, but there are many bluffs of poplar and much small willow and poplar scrub. The largest poplars are about 3 inches in diameter. Drywood river flows in a westerly direction through the southerly part of the township. It is about 50 links wide, 8 inches deep and has a current of about 5 miles per hour. The township, besides, is well watered by many good water sloughs and small streams. The soil is good, but the country is best adapted to ranching. A number of settlers have already settled in the township.—*G. J. Lonergan, D.L.S., 1902.*

Township 8.—With respect to topography, this township may be divided as follows: First, the surface of sections 25 to 36 is a succession of hills broken by ravines and coulees, varying in depth from 50 to 300 feet. Second, in the part comprising sections 13 to 24, the surface is in general of a rolling nature. Third, the remainder, that is to say, sections 1 to 12, may be called a level plateau. This township may be classed as prairie throughout, for there are but a few scattered jackpine of 20 inches in diameter adjoining the north outline. The soil is of a rich quality, but on account of its stony nature its value for agricultural purposes is decreased accordingly. No hay marshes of any extent are to be found in the township, but the grass is abundant and luxuriant. A fairly good trail leading to Beaver creek towards the east and Cowley towards the southwest, crosses the township on sections 13, 14 and 15. Numerous small streams are met in this township; the principal worth mentioning is Tennesee creek. This creek is 1 foot deep, 3 feet wide, with a rate of current of 3 miles per hour. Its course is southerly and its bed is in a ravine varying in depth from 30 to 50 feet. On account of the numerous springs existing in the hills, the water supply of this location may be considered as permanent. There are no water-powers, and no such power can be developed, even by the construction of dams. The climatic conditions of this locality are those generally prevailing throughout the foot hills, not excepting the high winds, which sometimes blow at a furious rate. Owing to the non-existence of coal and the scarcity of timber, the fuel supply is very limited in this township. No stone quarries or minerals of economic value came to my notice during the operations. No game or trace of same was found in this township. I may say that on account of the abundance of the grass, the supply of good water and the shelter offered by the hills, this township may be considered as well adapted for ranching purposes.—*Louis E. Fontaine, D.L.S., 1903.*

Township 11.—This part of the township where the operations were performed is hilly throughout. It is a succession of ridges with intervening coulees and small valleys. This broken surface is to be classed as prairie. A fairly good trail leading from Claresholm, a station on the Calgary and Edmonton Railway crosses this township on sections 35 and 36. The soil is in general a rich loam on a clay subsoil, but on account of the broken nature of the country its fitness for agricultural purposes is

very limited. No hay marshes are to be found in this locality, but the grass is rich and abundant. Two small creeks, one on section 25 and the other flowing through sections 26, 35 and 36 will ensure a supply of water to meet all requirements. Notwithstanding the permanent supply of water, no water-powers are to be found, nor can any be developed even by the construction of dams. The climatic conditions are those generally prevailing throughout the foothills. Owing to the lack of timber and coal no fuel is to be procured in this township, but an unlimited supply can be had in the adjoining township to the west. No minerals, game or quarries came to my notice during the operations. Concluding, I will say that owing to limited area of the unbroken surface this locality is best adapted for ranching purposes, as there is good shelter for the cattle, a good supply of water and the grass is abundant.—*Louis E. Fontaine, D.L.S., 1903.*

TOWNSHIPS WEST OF THE FIFTH MERIDIAN.

Range 1.

Township 8.—This township is hilly throughout. It is a succession of ridges of various heights, with intervening coulees and small valleys. The broken surface of this locality is prairie throughout. A fairly good trail leading to Cowley towards the south and the Waldron ranch towards the northwest, crosses the township on sections 13, 24, 25 and 36. The soil is in general a rich loam on a clay subsoil, but owing to the broken and uneven surface its fitness for farming purposes is therefore very limited. No timber of any description is to be found. No hay marshes are to be found in this locality, but the grass is of a rich kind and abundant. Numerous springs are found, but owing to their limited capacity the water supply is by no means permanent, and this was all the more evident by the fact that at the time of the operations most of the watercourses were dry, or if not entirely so the flow was very small. No water-powers exist in this locality. The climatic conditions prevailing in this region are those generally prevailing throughout the foothills. Owing to the non-existence of timber and the lack of coal no fuel can be procured in this township. A limited supply of timber suitable for fuel can be procured in the adjoining township to the north. No mineral, game or quarries came to my notice during the operations. In conclusion, I may say that on account of the limited area of farming land ranching would be the best occupation for those settling in this locality. The grass is rich and abundant, and there is good shelter afforded by the hills for the cattle. The water supply, as explained above, might prove a little deficient in dry seasons, but I think that this could be easily remedied by the fact that there appears to be no lack of water in sections adjoining the area surveyed during the present season.—*Louis E. Fontaine, D.L.S., 1903.*

Township 9.—The surface of this township consists of a succession of hills together with deep ravines, coulees and passes, varying in depth from 50 to 150 feet. This locality is prairie throughout, with the exception of a small area adjoining the eastern outline of the township of a triangular shape, having its summit on section 24 and its base being about one-half mile situated on section 1. In this strip of timber poplar, balsam, spruce, jackpine and a few fir of an average diameter of 5, 8, 10, 15 and 20 inches to correspond to the order of their numeration are found. A fairly good trail leading to Cowley towards the south, and the Waldron ranch towards the northeast, crosses the township on sections 1, 2, 10 and 15. The soil in general is a rich loam on clay subsoil, but on account of its uneven surface its fitness for agricultural purposes is reduced accordingly. No hay marshes are to be found, but there is an abundance of grass, and it is very luxuriant. Numerous springs are to be found in this township, and together with Olive creek, which has a good flow of water, the supply can be con-

sidered as permanent. No water-powers exist in this township, nor can any be developed even by the construction of dams. The climatic conditions of this locality are those of the foothills in general, including the noted winds. A heavy frost was noticed in this township during the course of the operations (June). A limited supply of fuel, building timber, fence posts and rails can be procured in the timbered area above mentioned. No minerals of economic value nor quarries were noticed during the operations. No game nor traces of same, excepting a few timber wolves, were found in this township. In conclusion, I may say that on account of the early frosts and the limited area of agricultural lands, this locality would be best adapted for ranching purposes, for it affords good shelter for the cattle, and an abundance of good grass being found everywhere, together with the unlimited supply of water, it would, therefore, more than fill the requirements.—*Louis E. Fontaine, D.L.S., 1903.*

Township 10.—This township is hilly throughout. It is a succession of hills, broken by deep ravines, coulees and passes, varying in depth from 50 to 200 feet. The only indications of timber are on the east boundary of sections 14 and 15 and on the north boundary of sections 12. In this limited area are to be found spruce of 10 inches diameter, balsam 6 inches in diameter and poplar of a diameter of 6 inches. The route for reaching this township is by the trail from Cowley to the Waldron ranche. It is a fairly good trail, the only drawback at times being the crossing of Oldman river. The soil is in general a rich loam on a clay subsoil, but owing to the broken nature of the country its fitness for agricultural purposes is limited. No hay marshes are to be found in the locality, but the grass is of a rich variety and abundant. Heath creek, having a good flow of water, will supply all requirements at all times. No water-powers exist in this township. The climatic conditions of this locality are those generally prevailing throughout the foothills. Owing to the lack of timber and coal, no fuel can be procured, but adjoining and to the north of this subdivided part, from all appearances, any quantity can be had. No minerals, game or quarries came to my notice during the operations. Heavy frosts were observed in this township while carryig on the survey. Concluding, I will say that owing to the early frosts and the limited area of the unbroken surface, this locality would be best adapted for ranching purposes, for there is a good shelter for the cattle, a good supply of water, and the grass is in abundance.—*Louis E. Fontaine, D.L.S., 1903.*

Township 11.—The southern outline across sections 1, 2 and 3 runs over a succession of hills covered throughout with spruce, fir and poplar of 10, 24 and 8 inches in diameter respectively. In sections 4, 5 and 6 the line crosses over a rolling prairie surface. The surface adjoining the western outline on both sides is prairie throughout and broken by a good sized creek. The north chord runs over a very broken surface and across sections 31, 32 and 33 the hills are covered with falling and standing burnt timber. The meridian running on the east boundary of sections 6 to 31 passes over a rolling prairie surface. On the east boundary of sections 8 to 32 the hill tops and slopes are covered with green timber of good dimensions consisting principally of spruce, fir and poplar of 10, 20 and 8 inches in diameter respectively. The best route for reaching this township is by the trail leading from Cowley to the Waldron ranche. The trail is fairly good, the only drawback at times being the crossing of Oldman river. The soil is in general a rich loam on a clay subsoil but owing to the summer frosts, which seem to be prevalent, its fitness for farming purposes is limited. No hay marches are to be found in this township but on the other hand there is an abundance of rich grass. Numerous creeks are to be found in this locality, the principal one being on the western outline of the township. It is 15 feet wide, 3 feet deep with a current of 2 miles per hour. All these watercourses will insure a permanent supply of water. No floods are liable to affect any of the land in this locality for the watercourses have not a sufficient flow to overrun the deep gorges in which they are encased. Water-powers are nonexistent nor can any be developed by artificial works. The climatic conditions are those

generally prevailing in the foot hills. A good supply of timber for fuel and construction purposes can be procured in the unsubdivided part of this township. No minerals of economic value, game or quarries were noticed during the operations. In conclusion I may say that owing to the early frosts the suitability for farming purposes of this locality is very doubtful, on the other hand owing to the permanent supply of water, the abundance and richness of the grass and the good shelter offered by the hills for the cattle, these conditions make it very suitable for ranching purposes.—*Louis E. Fontaine, D.L.S., 1903.*

Township 12.—The surface of this township is but a succession of hills, broken by deep ravines, coulees and passes, varying in depth from 100 to 150 feet. This locality is partly prairie and partly bush. Timber is found on nearly all the northern slopes of the hills and is largely spruce and poplar 8 and 4 inches in diameter respectively. A fairly good trail leading from Claresholm, a good distribution point on the Calgary and Edmonton Railway will reach this district. The soil is generally a rich loam on clay subsoil but owing to the broken and uneven surface its fitness for farming purposes is therefore very limited. No hay marshes are to be found in this locality but there is an abundance of luxuriant grass. Two creeks, one crossing sections 1 and 2 and the other meandering on sections 13 and 14 will give a permanent supply of water. No water-powers exist in this township, nor can any be developed by construction of dams. The climatic conditions are those generally prevailing in the foot hills, including the noted high winds. As most of the north slopes of the hills, as above stated, are covered with timber, a good supply of fuel can be procured therefrom. No minerals of economic value nor game or quarries were noticed during the operations. In conclusion, I may say that on account of the limited area of farming land ranching would be the best occupation for those settling in this locality. The grass is rich and abundant, there is good shelter offered by the hills for the cattle and the water supply is permanent.—*Louis E. Fontaine, D.L.S., 1903.*

Township 15.—The operations carried on in this township were confined to its northeast quarter and this section is rolling prairie, containing in its principal depressions the bed of a small stream or rivulet. The soil is in general a rich loam on a clay subsoil, but owing to the prevailing early frosts, its fitness for farming purposes is very problematic. A good trail leading from Nanton, a station on the Calgary and Edmonton railway, crosses this township on section 34, and there forms its junction with a trail coming from the north and going in a southeasterly direction to Willow creek. No hay marshes are to be found in this locality but the grass is of a rich kind and is abundant. The numerous small creeks meandering in the northeast quarter of this township will ensure a permanent supply of water. Notwithstanding this permanent supply, no water-powers are to be found nor can any be developed even by the construction of dams. The climatic conditions are those generally prevailing throughout the foot hills. Owing to the lack of timber and coal in this particular part where the operations were carried on, no fuel is to be procured but a limited supply can be had on the timbered ridges in the south of the township. No minerals, game or quarries came to my notice during the operations. Concluding, I will say that owing to the prevaling early frosts, this locality would be of a very limited value for farming purposes; but in compensation, it would afford a good range for ranching purposes, for there is good shelter for the cattle, the grass is abundant and the water supply is permanent.—*Louis E. Fontaine, D.L.S., 1903.*

Township 16.—The surface of this township is hilly throughout. It is a succession of ridges, broken by deep ravines and coulees. This broken surface is to be classed as prairie. Two fairly good trails make this township of very easy access. One of these leads from High river and crosses the tier of sections from Nos. 31 to 36. The other runs from Nanton and crosses sections 2 and 12. High river and Nanton are two important distribution points on the Calgary and Edmonton Railway. The soil is

in general a light loam on a clay subsoil, but owing to the broken surface and the prevailing early frosts its fitness for farming purposes is therefore of a limited value. No timber of any description is to be found in this township. No hay marshes are to be found in this locality, but there is an abundance of grass. Numerous small creeks meander in the ravines found throughout this township; the principal worth mentioning being a branch of Mosquito creek, flowing in sections 5, 6, 8, 16 and 17. On section 17 it is 5 feet deep, 8 feet wide, with a current of 3 miles per hour. These various small creeks, coupled with the numerous springs, ensure a permanent supply of water. There are no water-powers in this locality, nor can any be developed even by artificial works. The climatic conditions of this locality are those generally prevailing throughout the foot hills. Owing to the non-existence of timber and lack of coal, no fuel can be procured in this township. A limited supply of same can be had at a distance of about 8 miles to the south. No minerals of economic value, quarries or game were noticed during the operations. On account of the limited area of suitable farming land, together with the prevailing early frosts, this locality would be best adapted for ranching purposes, for it affords good shelter for the cattle. There is an abundance of grass and the supply of water is unlimited.—*Louis E. Fontaine, D.L.S., 1903.*

Township 54.—This township is rolling and hilly and nearly all heavily timbered with poplar, birch, spruce and large willows. A large quantity of spruce logs have been cut, principally on the southern part of the township; still, there are a few small spruce swamps scattered over the township where good sized logs of good quality can be cut—probably a few hundred. Small timber for posts and fence rails is very plentiful. The soil is mostly composed of sandy loam and clay. Good water is abundant all through this township. In the eastern part, which I subdivided, there are no roads except a short pack trail starting from a small lake near the central line and going southwest. Three lakes of considerable extent are found here, namely, No. 1 and Matchayaw lake, on the correction line, and lake no 4 near the southeast corner of the township. On the west side of Matchayaw lake there is a large hay marsh, and also one on the north side of lake No. 4. I did not see any prairie worth mentioning in the portion which I surveyed. The interior of this township is very difficult of access in summer. I did not see any trace of mineral here during the survey.—*J. B. Saint-Cyr, D..LS., 1902.*

Range 2.

Township 6.—The portion of this township in which my work lay was very hilly. The country is mostly prairie with many clumps and bluffs of poplar and willow scrub, with scattered clumps of large poplar 8 inches in diameter. The township is well watered by numerous creeks which rise in the hills. These creeks flow southeasterly and empty into Southfork river, which flows through the southern part of the township. All the water is good. The township is suitable for ranching only.—*G. J. Lonergan, D.L.S., 1902.*

Township 10 (ranges 2 and 3).—The land surveyed is situated on Oldman river and is reached by a good prairie wagon road from Cowley, a station on the Crow's Nest Railway. The sections surveyed lie on both sides of the river and reach the summits of the hills at an elevation of from 400 to 900 feet above the level of the river. The soil in the valley and on the lower benches, especially on section 31, township 10, range 2 and section 36 in township 10, range 3, is a rich black loam overlying a clay subsoil and is well adapted for raising vegetables. On the upper benches and hillsides the soil is generally composed of gravel and is only suitable for grazing purposes. The surface is a rolling and hilly prairie, partially covered with clumps of poplar and willow on the lower benches and with fir and some spruce on the hills. On the north half of section 35, the southwest quarter of section 25, and the southeast quarter of section 26, township 10, range 3, fir is found up to 24 inches in diameter

and some spruce up to 15 inches in diameter, suitable principally for fuel, fencing and building timber. The fir is churn butted and stunted in growth with large branches so that if manufactured into lumber it would produce a very inferior quality. There are no hay swamps, but the bunch grass on the lower benches on section 31, township 10, range 2, and on section 26, township 10, range 3, produces a good quality of hay, but no great quantity. The water in all the small streams as well as in Oldman river is good. There is no trace of alkali. Oldman river averages about 150 feet in width and about 2 feet in depth at low water. The current is very swift and the volume of water flowing per minute equals about 25,000 cubic feet. During high water the stream is about 10 feet deeper than at low water and taking into consideration the increased width of the stream the volume of water will be increased about ten times. Camp creek, with a swift current, is about 12 feet wide and 2 feet deep. Coal creek, about 20 feet wide and 2 feet deep and Ernest creek, about 6 feet wide and 2 feet deep. All of these creeks provide a never failing and ample supply of water the year round. None of the land is liable to be flooded. There are no falls on Oldman river within the limit of the survey. High winds are very frequent, often attaining a velocity of 30 miles an hour. With this exception the climate is a very desirable one, being generally free from frost during the earlier part of the season, but owing to the elevation above sea level, there is danger of cereals being frozen before ripening. There is sufficient wood on these sections to supply settlers for years to come. Besides this there is hardly a section that does not contain one or more seams of coal. On section 31, in range 2, a 6 foot seam of lignite is exposed in two places on Coal creek and about the centre of the same section there is an outcrop of 3 small seams of lignite on the bank of Oldman river. On the north boundary of section 35, in range 3, there is a seam 6 feet thick and on the north boundary of section 36, another seam 10 feet thick, both being bituminous coal. The seam on the north boundary of section 35 has been traced southward across Oldman river to the south boundary of section 26, and it is quite possible that the seams on section 31 in range 2 and section 36 in range 3, may be traced southward to sections 30 and 25 respectively. Neither stone quarries nor minerals of economic value other than the coal have been found within the limits of the survey. Game is limited to prairie chicken, willow grouse, and deer.—*John McLatchie, D.L.S., 1903.*

Township 16.—The operations carried on in this township were confined to its northeast quarter and in this particular section the general aspect is that of a rolling prairie surface containing in most of its principal depressions either a small lake or a slough. The soil is in general a light loam on a clay subsoil, and owing to the broken surface and the numerous sloughs its fitness for agricultural purposes is limited. A fairly good trail leading to Pekisko on the west and High river towards the east crosses sections 25, 34 and 35. No timber of any description is to be found in this township. No hay marshes of any extent exist in this locality, but the grass is abundant. Owing to the small ponds and sloughs prevailing in this township the water supply can be considered as permanent. No water-powers are found in this locality nor can any be developed even by construction of dams. The climatic conditions of this region are those generally prevailing throughout the foothills, including the noted high winds. Owing to the lack of timber and coal no fuel is to be had in this township, but a limited supply can be procured at a distance of about six miles to the west. No minerals of economic value, nor game or quarries or traces thereof were noticed during the operations. In concluding I may say that owing to the limited area of farming lands, ranching would be the best occupation for those settling in this township, for there is good grass in abundance, a permanent supply of water and there is good shelter afforded by the hills for the cattle.—*Louis E. Fontaine D.L.S., 1903.*

Township 53.—The township is hilly and broken in many places. The soil is poor with the exception of the sections adjoining the large spruce and tamarack swamp

which crosses this township from section 7 to section 25. A large quantity of very good timber, such as spruce and tamarack, is found in that swamp and in different places through the township. I believe that it would be in the interest of the government to reserve the timber sections 5, 6, 8, 9, 15, 16, 22, 23, 24, 25 and 26. The timber is long and varies from 8 to 18 or 20 inches in diameter. The logs could be floated in the large brook flowing into Matchayaw lake and from there into Sturgeon river. A good summer road could be made at very small expense, starting from the northeast corner of the township crossing the swamp a little west of the central meridian and from there taking a southeasterly direction. The country from there is partly opened and the settlements of Spruce Grove and Stony Plain can easily be reached. The settlers will find all the timber they want for building, fencing and for fuel, outside the above mentioned reserve. Good water is plentiful in this township. A good many sections will require very little work to clear them, especially those adjoining the large swamp, the fire having passed there many times. This township can also be reached by Lake St. Ann trail.—*J. B. Saint-Cyr, D.L.S., 1902.*

Township 57.—This township is very rolling and hilly, the prairie comprises part of sections 1, 2, 3, 4, 9, 10, 11, 12, 14, 15, 16, 21, 22, 26, 27, 28, 33 and 34, the remaining sections or parts of sections being covered with spruce and poplar bluffs with large willows and quite a number of muskegs and sloughs. The soil here is not so good as in township 57, range 1, only a few inches of black loam are found on the heights. The subsoil is composed of clay, or hard clay and stones. I do not believe that farmers will succeed in this township for it is more adapted for ranching than farming. In dry seasons the low land, which is of better quality could be cultivated profitably, but with such a rainy spring and summer as we are having now it is impossible to do anything of the sort. Hay sloughs are found in every part of the township; at the present time of the year there is from 1 to 2 feet of water in them, which is a great inconvenience and renders the hay cutting impossible. The hills are covered with a good grass mixed with pea vine. The timber is of very poor quality and is only fit for fencing purposes and for fuel. The principal lakes in this township are Lake Majeau on the east boundary, part of Lake la Nonne on the western boundary and part of Lake Nakamun on the south boundary (generally called Lac en Long). The lakes above mentioned and the streams that drain this township are tributaries of Pembina river. The water is clear and wholesome in every creek and lake. The Pembina trail crosses this township from the southeast corner in a northwesterly direction, passing the western boundary on section 30. There is also another wagon road around Lake la Nonne. Very little improvement has been made in this township; the people residing in it around Lake la Nonne being ranchers rather than farmers. Some half-breeds keep a few cattle but do not cultivate at all. No traces of mineral have been found in this township.—*J. B. Saint-Cyr, D.L.S., 1902.*

Range 3.

Township 6.—The township is very hilly and the hills are high. There is a good amount of good timber in some parts, but it is scattered. There is a great deal of jackpine and poplar and some scattered large pine and fir averaging 20 to 30 inches in diameter. The township is well watered by Southfork river, and the numerous creeks and springs which flow into it. The water is all good. A few ranches might be located along the river.—*G. J. Lonergan, D.L.S., 1902.*

Township 7.—This township is mountainous. There is no timber of any value on the lines I surveyed. The surface is rocky and has been burned over in places.—*G. J. Lonergan, D.L.S., 1902.*

Township 58.—This township except a small portion at the southwest corner is generally fairly open and covered with scrub, and although the soil is good, is some-

what hilly, except along Pembina river, where it is more level. The river enters the township on section 6 and crossing the east boundary on section 24, crosses several times between there and the north boundary. Good farms can be made easily almost all over this township. Several squatters have already taken up places and others say they will as soon as they can locate. One of the settlers who has been on the river for several years speaks highly of the grain-growing qualities and its suitability for mixed farming. I have seen this Pembina valley about 15 miles northwest of here, and there the country appears much the same, so that I expect there is good agricultural land for a long distance along the river. A railway survey line supposed to be the Canadian Northern, was crossed at the north boundary.—*J. K. McLean, D.L.S., 1903.*

Range 4.

Township 31.—The township may be reached by wagon road from Olds or Didsbury, some 15 miles east and situate on the Calgary and Edmonton Railway. The soil is very fair, with a depth of from 4 to 6 inches of clay, or sandy loam, and is best suited to mixed farming or stock-raising. On account of its proximity to the foot hills it is subject to summer frosts. The surface as a general rule is rolling and mostly given to scrub, although patches of merchantable timber have existed, which have been or are being rapidly converted into lumber by the settlers of the adjacent townships. Along Little Red Deer river which flows north through the centre of this township are, or were, clumps of spruce averaging 12 inches in diameter. The settlers for some 30 miles east have, however, cut into it so as to make it unfit for timber berths. Tamarack very suitable for posts is still to be found in the swamps. Poplar suitable for house logs will be available for some years, but the quantity of these latter is not sufficient to prevent the settlers from securing permits to take enough for their needs, or making any reserve of the same. As a general thing there is not a great quantity of hay, but sufficient for moderate needs is to be had from the low lands and patches of prairie, the supply could be easily augmented by a small amount of labour in clearing off the brush where it is light and in the growing of green feed. Little Red Deer river flowing through this township affords a permanent supply of water of the best quality, being snow-water from the mountains and free of alkali. The waters of this stream are contained between banks from 20 to 50 feet high and average about 80 feet in width at flood time, when it has a velocity of about 5 to 6 miles an hour and is then some 10 to 15 feet deep. There is no water-power, except what might be developed from dams thrown across the river. The climate with the exception of the last four years, has been clear and dry. As already mentioned, the proximity of the mountains renders it liable to summer frosts. Poplar, spruce and tamarack timber, which is plentiful, is in its shape more suitable for fuel than for any other purpose. Coal so far as I am aware, has not yet been found, although a find had been reported, but I do not see why it should not exist here. Outcroppings of sandstone appear all along the river, and if developed, I would think, would supply good building stone. No quarries are yet being worked. There are no minerals so far as I could find out. Deer, prairie chickens and ducks are quite plentiful. Trout and greyling are to be found in the river. At the time of writing I might add, that the desirable portion of the township open for homestead, has been about all taken up.—*A. Driscoll, D.L.S., 1903.*

Township 32.—The township is reached by wagon road from Olds, some 15 miles distant on the Calgary and Edmonton Railway. The soil is very fair, varying from a sandy to clay loam, 6 to 10 inches in depth. In general the country is most adapted to mixed farming and stock-raising. The surface is rolling with some brush, with a good proportion of large timber sufficient for the needs of the settler. The valley of Little Red Deer river contains some groves of fair sized spruce, these, however, have

been culled until they are only suitable to supply the settlers with house logs and firewood. Hay is scarce; the low places and patches of prairie, however, provide a small amount. A permanent supply of water and of the purest nature is supplied by Little Red Deer river, which flows north through the centre of the township, and I should judge that good water could be had at a slight depth in any part of the township. This river at flood time has a width of 80 feet, depth of about 15 feet and a velocity of some 5 to 6 miles an hour and is contained between banks some 50 feet in height. There is no water-power, except what might be developed by throwing dams across the river. Until the last few years the climate has been dry and clear. Owing to its proximity to the mountains summer frosts are frequent. An abundance of firewood is to be had in most parts of the township, but no definite reports are given as to whether coal exists. It only remains to develop the numerous outcroppings of sandstone which are shown along the river, to produce an abundance of building stone. There are no minerals so far as I could ascertain. Deer, prairie chicken and ducks are found in their seasons, and trout are to be found in the river.—*A. Driscoll, D.L.S., 1903.*

Township 33.—The township is reached by wagon road from Olds or Didsbury, distant some 15 miles east on the Calgary and Edmonton Railway. The soil is fair, varying from clay to sandy loam, with a depth of from 6 to 10 inches, and better adapted to mixed farming or stock-raising. The surface is high, rolling and scrubby, with occasional clumps of large spruce and poplar, the latter mostly culled for timber. Groves of spruce and poplar have existed, but these have been culled to such an extent that there only remains sufficient for the settlers' needs. Hay is not plentiful, but a small amount can be had from the low places and the patches of open prairie. Little Red Deer river flowing through a southeast corner of the township affords a permanent supply of pure snow-water; this stream at flood time has a width of 80 feet, depth 15 feet and a velocity at that time of about 5 or 6 miles an hour and banks rising to a height of 100 feet. There is also a stream running through the northwest part of the township, which although small, will be found very useful to the settlers. There is no water-power, except what might be developed by throwing dams across either of these streams. With the exception of the last few years the climate has been clear and dry, but on account of its proximity to the mountains, summer frosts are frequent. An abundance of timber for fuel is to be had in small patches throughout the township. As yet, however, no positive information of coal having been found, is furnished. Outcroppings of sandstone are to be seen along the river, which if developed should produce good building stone. There are no minerals so far as I could ascertain. Deer, prairie chickens and ducks are plentiful during their seasons.—*A. Driscoll, D.L.S., 1903.*

Township 41.—The soil is generally of a good quality, but as the township contains many sloughs, a large portion of it is unfit for agriculture. The topography is not much broken, although there are elevations which may be called hills, but the slopes are everywhere easy except towards the southwestern corner, where there are a few steep inclines, from one of which, situated on the line between sections 5 and 6, the eye can reach northerly, a distance of 10 miles. This country was originally covered with a thick forest of spruce of fine dimensions as may be seen by the remains in the windfalls which we have met, but a fire which raged all through this region in 1889 destroyed the most valuable timber. It is now being replaced by a new growth, mostly poplar, mixed with thick willow brush. The eastern slope of Medicine river, which meanders through the township on a course nearly north and south, contains very few spruec trees, but quite a number of these of fair dimensions are met with on the western side of the river, together with some jackpine on the ridges, these last as successors to the original growth. The best spruce found, and which I believe was left untouched by the great fire, is situated on the line between sections 7 and 8, where the quality and

quantity of the timber reminded me of the densest forests of northern Quebec. There are very few prairie areas, and they are very small in extent, so that very little farming, if any, can be done without clearing at least the willow brush, but clearing land here is very light work compared to what it is in the older provinces. Before long, I might say before two years have passed, the country will be occupied and settled, many having already visited this section, and the lands to the south and east are becoming comparatively crowded.—*Geo. P. Roy, D.L.S., 1903.*

Township 42.—Poplar, with a few spruce, are the principal kinds of wood in this township. No timber berth of any extent could be located as the township was devastated by fire 15 years ago, and the growth, except in a few places, which accidentally escaped, is of recent date. There is plenty of wood to fill the wants of the settlers for some years to come.—*Geo. P. Roy, D.L.S., 1902.*

Township 43.—This country was originally covered with a thick forest of spruce of fine dimensions, as may be judged by the remains in the windfalls which we have seen, but a fire which raged all through this region in 1889 destroyed the most valuable timber. It is now being replaced by a new growth, mostly poplar intermixed with thick willow brush. The soil is generally of a good quality, but the township containing many sloughs, a large portion of it is unfit for agriculture unless drained. There are very few prairie spots and very small in extent, so that very little farming, if any, can be done without clearing at least the willow brush, but clearing land here is very light work compared to what it is in the older provinces.—*Geo. P. Roy, D.L.S., 1903.*

Townships 46, 47 and 48.—(East outline.)—On section 1 the timber is poplar, cottonwood and birch for the first half mile, when two small creeks are crossed and jackpine met with, which continues across the section. On sections 12 and 7 very heavy spruce from 10 to 24 inches in diameter and suitable for lumbering is met. It extends only about one-half mile west of the line, when the country appears lower and partially burnt, but runs east as far as could be seeen. After about a mile of slash and muskeg large spruce is again met with, which with a mixture of pine and scattered cottonwood and poplar continues north to the middle of section 13, township 47, range 4. Spruce and pine is the prevailing timber, the spruce is from 10 to 24 inches in diameter, tall and free from limbs, and would make fine logs. The pine is unlike any I have heretofore seen in this district. It runs generally from 10 to 16 inches in diameter (some trees were seen nearly 24 inches in diameter), is very tall, holding its size well, and free from limbs. A creek about the middle of southeast quarter of section 13 was seen, about 10 links wide and 18 inches deep, and might be available for driving. I think it is a branch of Modeste creek. The latter creek was crossed on the east boundary of township 47, range 4, on section 24, and is there 33 links wide and from 2 to 3 feet deep. It was again crossed on the north boundary of township 48, range 5, where it is over one chain wide, 3 to 4 feet deep, with a strong current, and logs could be easily floated on it. Except a narrow strip of timber south of Modeste creek on section 24, and another on section 36, the whole of township 48, range 4, has been burnt over and is now a bad slash with poplar scrub. The soil is a heavy clay. Along the east boundary of township 48, range 4, the country has been burnt as far as a creek, one of the branches of the Strawberry, and east of this creek green timber is again seen. The pine and spruce in townships 46 and 48, ranges 3 and 4, will make one of the finest timber limits I have seen in the country, and am sure logs can easily be taken to Saskatchewan river by way of Modeste creek.—*J. K. McLean, D.L.S., 1903.*

Township 53.—Nearly all the timber in this township has been destroyed by fire, and there remain only scattered bluffs of second growth poplar and a few spruce and tamarack swamps, excepting in the southern tier of sections along Wabamun lake, where there is some large spruce and cottonwood. The quantity, however, is only sufficient for settlers' use. The rest of the township is more or less overgrown with willow brush and young poplar. For agricultural purposes, nearly the whole of this township rates

third or fourth class, as it is generally very rolling, with numerous swamps and muskegs. The soil is light, and on the ridges gravelly. In sections 33 and 34 the soil is of better quality, and would probably rate as second class. There are two small lakes in the township, the larger known as Whitewood lake in sections 20 and 21, the other which I have called lake A., in sections 21 and 28, around which a considerable quantity of good hay could be cut in a dry season, and there are a number of small hay sloughs scattered throughout the township. The water in Whitewood lake is very good. In the southern part sections 16, 17 and 18 are the best, as they are less rolling, but the soil appears to be light, and the southern quarter sections of each are broken by gullies and cut banks. This is particularly the case with the southwest quarter of section 18, more than half of which is waste land. Sections 7 and 8 and the northern part of sections 9 and 10 are useless for farming purposes, as they are broken by deep gullies and ravines formed in sections 7 and 8 by a succession of hog-back ridges lying between the high land and Wabamun lake. Several small creeks flow out of these gullies, but the water is not good, being apparently impregnated with some mineral.—*Hugh McGrandle, D.L.S., 1903.*

Township 54.—This township is rolling, and mostly covered with timber, consisting of poplar, spruce and tamarack from 6 to 8 inches in diameter. The greater portion of the timber has been killed by fire, and is only fit for fuel and settlers' use. There are patches where the timber is mostly all burned off and now grown up with poplar and willow brush. In the southern part of the township there are numerous swamps and two small lakes with marshy shores. On the east, south and west of these lakes and on the west of Lake St. Ann are large grass sloughs where hay is cut in dry seasons. The land in this township is rated third and fourth class, having only from 3 to 8 inches of black loam, with clay subsoil in the flats, and the hills and ridges are light and stony. A creek flows from Goose lake through sections 10, 11, 14, 13 and 24 into Lake St. Ann. A wagon trail runs across the township through sections 19, 20, 21, 22, 23, 26 and 25, with several branches to Lake St. Ann and to the hay sloughs.—*H. McGrandle, D.L.S., 1902.*

Township 55.—The only part of this township surveyed was the south boundary of the same and the east boundary of section 2, and part of east boundary of section 11, and the traverse of a portion of Lake St. Ann and Farming island. The timber is mostly burned and overgrown with poplar and willow scrub. The land is rated third class.—*H. McGrandle, D.L.S., 1902.*

Township 57.—(East outline.)—Here there is considerable spruce, suitable for lumbering, whether in sufficient quantities for a good limit is doubtful. The country is somewhat hilly and would not make good farms.—*J. K. McLean, D.L.S., 1903.*

Range 5.

Township 48.—(North outline.)—The timber east of Modeste creek, which is crossed on section 34, has been destroyed by fire and is now down in slash, with poplar scrub. The land is poor heavy clay, and is broken by swamps. A strip of green timber about a mile in width and in which there is considerable spruce, runs along the west side of Modeste creek. About two miles north there is green timber on both sides of the creek. The spruce although large is scattered, but as it is comparatively close to the creek, can easily be taken out. The rest of the country along the north boundary of this township is very poor. The timber is all burnt and down, while large swamps are met. —*J. K. McLean, D.L.S., 1903.*

Township 51.—(West outline.)—The east boundary of this township passes along the centre of Low-water lake, a shallow lake nearly six miles long and varying from one to two miles in width. The country along the west side of the lake is high and covered with timber. In travelling across the northerly part of the township it was

seen that the timber extends only a short distance west and is almost entirely destroyed by fire. What remains is chiefly jackpine, small and scrubby, and of no commercial value. The country is rough and hilly, with poor soil, and not suitable for agriculture. There is a fair range for cattle, the summer feed being good. Hay is reported plentiful west of the south end of Low-water lake although I did not see it.—*J. K. McLean, D.L.S., 1903.*

(East outline.)—This line passes across Low-water lake. The west side of the lake appears high and hilly with green timber extending for some distance westward. Along the east side the country is lower and is also timbered.—*J. K. McLean, D.L.S., 1903.*

Township 52.—I did not run the east boundary of this, but cut a pack trail northwesterly through the township to Wabamun lake. The country is very rough and hilly and thickly timbered with poplar and cottonwood from 8 to 12 inches in diameter. Occasional spruce are seen, but they are so scrubby and scarce that they were of no value for lumber.—*J. K. McLean, D.L.S., 1903.*

Range 6.

Township 33.—An area of about three square miles in the southwest corner is heavily timbered. Jackpine occurs here running to eighteen inches diameter, with a smaller quantity of fourteen inch spruce, balsam, fir and poplar. This part is very hilly. The remainder of the township is lightly wooded or quite open. The surface is rolling and in places hilly. The soil is first and second-class.—*J. N. Wallace, D.L.S., 1903.*

Township 34.—The best part is the James river valley which is lightly wooded with small poplar and prairie patches are large and numerous. North of James river, the east half of the township is generally wooded all over. The west half is very rough with many open spaces.—*J. N. Wallace, D.L.S., 1903.*

Township 35.—(West outline.)—The westerly half is all wooded with much swamp area on which is small spruce and tamarack. The easterly half is very open, there being large tracts of almost bare prairie. This part is very hilly in places.—*J. N. Wallace, D.L.S., 1903.*

(East outline.)—The east outline of the township runs across a rolling and in places hilly country, but the timber is not heavy and many parts, especially that about the north end of the outline of this township, form a very attractive country for settlers.—*J. N. Wallace, D.L.S., 1903.*

(Subdivision.)—This township is accessible from the north or east by a trail on the north side of Raven river, which trail can be made a very good road in ordinary seasons, and Raven river, a small stream about 30 feet wide, could be bridged. The soil is mainly a clay with a few places where black loam is found on clay subsoil. It is broken across sections 25, 26, 27 and 28 by a ravine about 200 feet deep, through which a small stream flows from its head in section 19, and which stream is gradually enlarged by tributary streams flowing from the north and south, until it becomes about 20 feet wide, 9 inches deep, with a current of about three miles per hour on section 25. From this stream the land rises towards the south for two miles when the country becomes hilly with small sloughs and ponds between them and then descends towards the southwest. Along the north boundary the land descends generally to Raven river in the next township (35, range 6). Altogether the township is broken too much by hills, ravines and creeks to be a good farming country, although where grass grows it shows a very luxuriant growth. Along the creeks are a few spruce large enough for small saw-logs but too few for commercial use. Also there are a few small bunches of jackpine from 7 to 10 inches in diameter, but short and with limbs to the ground. The remainder of the timber is

poplar, willow and poplar brush, very thick generally and of no value except for fuel. The few hay meadows are small and not at present of value, being generally full of scrub and willows. Water is invariably good, no alkali was found in the township. Streams are all small and would not be available for water-power. Summer frosts occur, I am told. I did not find any coal or lignite, nor stone quarries or minerals, nor was there any game seen of any kind, although I am told that the Stony Indians range through this country finding deer and moose in the fall and bears in the spring. Speckled trout are plentiful in the larger streams. When the land is cleared it should be a good ranching country as the soil is capable of growing good vegetation and the water the best that can be had anywhere.—*Henry W. Selby, D.L.S., 1904.*

Township 36.—(East and west outlines.)—The central part of the township has many extensive open areas. The part northwest of Clearwater river is partly open and partly timbered in a very irregular manner. A belt of 12-inch spruce occurs along the Clearwater, but the remainder of the timber is small.—*J. N. Wallace, D.L.S., 1903.*

Township 51.—(East and west outlines.)—The country along the east boundary of this is much broken by swamps with intervening ridges covered with scrubby pine. On section 24 the country becomes more open, of better quality, although still of a poor class and is higher. A pack trail from Wabamun lake is crossed on this section. Continuing south the country still improves slightly and is partially covered with scrub. Along the east boundary of township 51, range 7, the country is much broken by swamps. On section 30 a creek with an open valley, running southeast is crossed. I do not think township 51 and 52, ranges 5, 6 and 7, west of the fifth meridian will ever be suitable for settlement. Where not swampy the country is rough and hilly. The soil is a heavy clay. On seeing the same soil in other parts of the country where the timber had been burnt, I was under the impression that owing to excessive fires the alluvial soil had been burnt, but find here among the heaviest timber that the clay is covered with a very few inches of loam or decayed vegetable matter, when a stiff clay not unlike gumbo is found. I am somewhat doubtful if this heavy stiff clay will be suitable for grain growing. However, as the country is rough, and none of the timber of any commercial value, the spruce being scrubby and scattered and the poplar and cottonwood (of which there is plenty much closer to land suitable for settlement), only suitable for fencing and small buildings, and as a great number of creeks which eventually find their way to the Saskatchewan either direct or by way of Wabamun lake or Isle lake rise here, it might be well if these townships could be kept without subdivision and the timber preserved as it now is for at least a number of years.—*J. K. McLean, D.L.S., 1903.*

(East outline.)—This line passes through a very thick growth of poplar and cottonwood, with a little birch and some spruce. The poplar and cottonwood are from 16 to 20 inches in diameter, while the birch is small and the spruce scrubby and unfit for lumbering. The soil is clay, with a very thin covering of loam or vegetable matter. On section 36 there is considerable jackpine, but it is small and scrubby; large poplar and cottonwood are met on section 35 and continue with slight exceptions across the township.—*J. K. McLean, D.L.S., 1903.*

Township 52.—(West outline.)—At the northwest corner of this township there is a grove of jackpine, very scrubby and thick on the ground. It extends south about one-half mile, when a small area of open country is crossed. This open country extends east about a mile, and a short distance west a very thick, heavy growth of poplar and cottonwood, with occasional spruce is then met with, which extends to the south boundary. The poplar and cottonwood are of good size, some up to 20 inches in diameter. The spruce, although large, is scrubby and very much scattered. Along the north boundary the pine extends about a quarter of a mile when poplar is met. A very

narrow strip is open along the creek in section 36, but heavy poplar and cottonwood, with some spruce and pine cover the whole of the township.—*J. K. McLean, D.L.S., 1903.*

Range 7.

Township 33.—(East, west and south outlines.)—About four square miles of this township at its southwest corner are very hilly and timbered with 10-inch pine and alder thickets. The hills are 300 to 500 feet high. The remainder of the westerly outline runs through a somewhat hilly country. The centre and east of the township are almost entirely open land, traversed by numerous branches of Bearberry creek. It is one of the best townships of those outlined for cattle-raising.—*J. N. Wallace, D.L.S., 1903.*

Township 34.—(East and west outlines.)—Along the north side of James river, the country is composed of prairie patches alternating with light poplar. The easterly half of the township is rough and partly open. The westerly half has many small hills formerly covered with small jackpine, but now largely burnt over and covered with small windfall. At the northwest, the timber is very dense but small. The nearest well defined foothills are about 8 miles west of the northwest corner of the township.—*J. N. Wallace, D.L.S., 1903.*

Township 35.—(East and west outlines.)—About three quarters of this township comprising all that lies southeast of Raven river is generally timbered with small pine, poplar and spruce. The remaining quarter of the township has been burnt over and there is now a great deal of windfall. There are irregular patches of green timber. —*J. N. Wallace, D.L.S., 1903.*

(Subdivision.)—This township is very rough with ridges running generally northeast and southwest nearly parallel with Raven river, therefore, it can be most easily entered from the northeast on section 35. From thence trails might be made in many directions, all more or less hilly and hard to travel, more especially south of Raven river. The soil generally is a clay loam on clay subsoil with an occasional sandy knoll. Raven river enters in section 7 and leaves at section 35 flowing in a well defined valley, but following therein a very tortuous course. A large lake occupies portions of sections 1, 2, 11 and 12, with a small creek of excellent water running into it from the southwest. The surface of the country is thickly covered with poplar, jackpine and spruce, but except along the creeks it is too small for any use but fuel. No hay lands were seen in the township. The supply of water is good, sufficient and of the very best quality, but I do not think it large enough to be of any value for water-power purposes. There were no coal or lignite veins seen, neither stone quarries nor mineral of any description nor game. The township if cleared of timber would not make good farming land, but for hay or grazing purposes might be very satisfactory.—*Henry W. Selby, D.L.S., 1904.*

Township 36.—(North, east and west outlines.)—South of Clearwater river, the lands are nearly all timbered and there are only a few small open spaces. North of the river, the country has been burnt in many places. Towards the northwest there is a large area of pine forest, very thick, but not over 8 inch trees on the average. The northeast part of the township is much more open. Clearwater river can be forded in the late summer but its steep banks make travelling with a wagon impossible except near its intersection with the base line on the north of this township. Once it is crossed, there is a good road along its north bank through the township.—*J. N. Wallace, D.L.S., 1903.*

Township 52.—(North and east outlines.)—Along the north boundary of this township there is a heavy growth of poplar and cottonwood extending almost to section 34, when a stretch of open country along the pack trail from Isle lake to Brazeau

river is met. However, this open stretch is narrow and much broken by swamps. The pack trail is crossed on section 33 and Pembina river is met on section 32. The valley is very narrow and the country along the west side appears very rough and is wooded. Coal exposures show on the cut banks of the river. Going south along the east boundary of this township large poplar and cottonwood extend about 2 miles when the country becomes much broken by large muskegs and swamps, which continue to the south boundary of township 51, range 7. None of these townships are suitable for agricultural purposes. The soil is clay, over which there is a thin covering, not more than 2 or 3 inches of mould or loam. The timber is only suitable for small buildings and fencing and has little commercial value.—*J. K. McLean, D.L.S., 1903.*

Range 8.

Township 29.—(East outline.)—The line passes over a very wild country composed entirely of hills formerly heavily timbered but now devastated by fire. The hills are from 400 to 700 feet high and covered with an immense quantity of standing and fallen burnt timber. Everywhere a thick growth of jackpine varying from 1 foot to 15 feet in height is now coming up. Green timber only occurs in patches along the outline, sufficiently large to bear witness to the great loss caused by fire. Along the south of the township to the east there is still some large living timber, but as far as could be seen to the west (and many miles can be seen from the tops of the high hills) everything has been burnt. Fire has evidently run here since the base line was surveyed.—*J. N. Wallace, D.L.S., 1903.*

Township 30.—(East outline.)—The east of township 30 is not of so rough a character as that of township 29. The valleys are wider and much more open but the country is still broken by long ridges of hills.—*J. N. Wallace, D.L.S., 1903.*

Township 31.—(East outline.)—The east of township 31 is still hilly but the hills are not high. The part south of Red Deer river runs through much fallen timber, and the soil is very shallow. To the west all is burnt. There is some open but hilly land to the east. The part of this outline north of Red Deer river crosses a rolling tract of good land extending for a mile or so on each side of the line.—*J. N. Wallace, D.L.S., 1903.*

Township 32.—(East outline.)—The outline passes over several long ridges of hills about 450 feet high with some wide valleys extending as before south-southeast. The last couple of miles near the base line cross a country composed of irregular round-topped hills covered with a forest of 8-inch pine, the forest extending southeasterly across the township. From what could be seen along the above line, the country lying to the west is quite unsuitable for anything in the way of agriculture. The country here is generally thickly covered with small timber, burnt for some miles north and south of the correction line. Except for a small prairie area on the south of Fallen Timber creek, there is no open land except what is swampy.—*J. N. Wallace, D.L.S., 1903.*

Range 25.

Township 77.—The outlines of this township were run but no subdivision work was done. The country along the base line is swampy for the first three miles and of a rolling sandy nature for the next two. The last mile of the base line and the first five miles of the eastern boundary are the usual poplar and spruce country. The last mile of the east boundary and the whole north boundary run through a network of open marshes, interspersed with some belts of very good land, rather heavily timbered.—C. C. *Fairchild, D.L.S., 1902.*

TOWNSHIPS WEST OF THE FIFTH MERIDIAN—RANGE 25.

Township 78.—The south two-thirds of this township is very marshy for a great part and Coote lake is little more than a great marsh. The township is heavily timbered in the north part while in the south it is heavy in places and light in others. The country adjoining the east and south sides of Coote lake is full of marshes of varying size and practically grades No. 4 as for settlement. The pack trail from Lesser Slave lake to Spirit river crosses this township running north of Coote lake. The soil is excellent where not marshy and in some of the dry marshes hay was seen six feet in height.—*C. C. Fairchild, D.L.S., 1902.*

Township 79.—(South and east outlines.)—The country is generally heavily timbered, soil good and generally dry.—*C. C. Fairchild, D.L.S., 1902.*

Township 80.—As only the boundaries and the northern one-third of this township were surveyed, the report is confined to that part of the township. North of Peace river the country is generally rolling prairie with enough timber on some sections to provide for the requirements of the prairie parts. On the margin of the river and extending back in places for a mile or more is a block of as fine farming land as can be found in the North-west Territories. These lands are partially prairie and the soil excellent. The surface is generally level and a fringe of good timber skirts the river. On the south side of the river, with the exception of the prairie running down to the river, shown on plan, is found heavy timber covering both side-hill and valley. The valley, when cleared, will make excellent farming land, and timber enough can be had for all requirements. A considerable sprinkling of spruce is found throughout the other timber, but not in quantities to recommend its being reserved. On the islands, or rather what are islands in high water, large spruce groves in such quantities that I would recommend its reservation. The 21st base line, in its fifth mile across range 25, reaches the summit of the banks of Peace river, which I estimated at 900 feet above the river. On the plateau the land is excellent, and not so heavily timbered as the south flat of the river. Numerous small hay marshes abound in this level plateau, but I am informed by the Indians and others that these are practically all dry except in a wet season such as 1901. In fact, great difficulty is met in finding water by hunters here except in the river, Egg lake and two or three creeks found between. This township, like the one to the west, is very difficult to approach except by boat or saddle horse, and this objection applies to the whole country between the 20th and 21st base lines.—*C. C. Fairchild, D.L.S., 1901.*

Range 26.

Township 77.—This township may be divided generally into two parts for agricultural purposes, viz. : (1) north of Birch hill; (2) south of Birch hill. That part lying north of Birch hill slopes gradually to the north from the crest of the hill and contains some excellent farming land where not too heavily timbered. The northwest corner is the best part of the township. The eastern portion of the north half is more heavily timbered, chiefly with poplar, and interspersed with small marshes. This may be said to be the case with the eastern part of the south half as well, except that the timber is larger with a greater proportion of spruce and marshes are more frequent and larger. The southwestern portion consists for a great part of a series of connected swamps and marshes, the only valuable feature being a considerable extent of large poplar, spruce, tamarack and jackpine timber. Birch hills extend only about one mile east of the sixth meridian; the east and south sides of the range are very steep and broken, while the north slope, as before mentioned, is for the greater part a steady decline.—*C. C. Fairchild, D.L.S., 1902.*

Township 78.—The surface of this township is generally slightly undulating and covered with a growth of poplar and spruce of varying size. A considerable portion of the surface is covered with a thick undergrowth of willows, and a large marsh in the

centre of the township detracts considerably from its value. The soil is excellent where dry, but it is rated as No. 2 only on account of the timber growth. The creeks shown on the lines all run dry in the summer. The trail from Lesser Slave lake to Spirit river settlement passes through the southern part of the township.—*C. C. Fairchild, D.L.S., 1902.*

Township 79.—This township has more prairie and is better drained than any of the others examined by me on the south side of Peace river. Fox creek, a never-failing stream of good water, runs from east to west across the township and a branch runs from the southwest angle of the township in a northeasterly direction to join the main stream. This branch, however, dries up in summer. A greater part of the land lying on either bank of these creeks is prairie, broken with bluffs of small poplar and willow. The soil is excellent, generally well drained and but for the timber which increases in size as you get further from the creek, would be number one for agricultural or grazing purposes. Some small marshes are found in the north end of the township, and strange to relate, though the north limit runs at the west side within one mile of Peace river the drainage is all towards Fox creek. The ravine through which the creek runs is only about 25 feet deep at the east boundary and increases to 100 or more at the west boundary, where both banks are more or less heavily timbered. —*C. C. Fairchild, D.L.S., 1902.*

Township 80.—On July 26 I started the survey of this township. The greatest difficulty in the survey was the crossing of the various marshes, many of which had three feet of water in them at the end of July which were practically dry by the middle of September. The township lies almost wholly in the valley of Peace river, *i.e.*, between the tops of the high banks. The soil is first class clay loam and black loam, but a great portion of the surface is so broken that it would be practically useless for grain farming but would do for grazing. There is plenty of timber for wood and building in the township, although a portion of the river had little beside small poplar scrub. The growth during the summer of 1901 was almost tropical, the pea vine and grass reaching a height of 6 feet in places. Saskatoon and raspberry bushes are plentiful in many places and the yield for the season was very prolific. Horses run wild over the district north of the river and have the slightest difficulty in wintering without feed. The township is approachable, however, only by boat or saddle horse, the deep gullies formed by the tributary creeks, making road-building almost an impossibility. The creeks shown on plan and in notes required to be bridged to cross my pack trains, while in September no water was running in any of them. The greater part of the township north of Peace river has been burnt over in past years, while the south bank is as yet untouched. Peace river was so flooded that I found it impossible to swim my horses and I was forced to transfer them in a boat, but by the time the traverse of the river was made it had fallen to normal low water. Some excellent flat lands mostly on the south side of the river would make splendid farms. These lands hemmed in by surrounding hills, like the settlement at the mouth of Smoky river, are among the finest I have ever seen.—*C. C. Fairchild, D.L.S., 1901.*

TOWNSHIPS WEST OF THE SIXTH MERIDIAN.

Range 4.

Township 80.—(Survey of section 18.)—The Dunvegan flat is not extensive, while the country north of the river is prairie with bluffs of poplar and spruce along the creeks.—*C. C. Fairchild, D.L.S., 1902.*

Ranges 7, 8 and 9.

Townships 17 and 18.—The lines run here with a few exceptions form the southerly limit of the railway belt. The survey ran through Trinity creek valley and over

a mountain range to Okanagan valley. Most of the country is rough and mountainous. There are several sections of fairly good agricultural land on Spallumcheen river and near the mouth of Trinity creek. There is a small quantity of good timber. A great deal of the timber has been burnt.—*Jos. E. Ross, D.L.S., 1903.*

Range 12.

Township 17.—In this township a survey was made of a small piece of land fairly well adapted for farming, lying between provincial lots and the mountain.—*Jos. E. Ross, D.L.S., 1903.*

Ranges 23 and 24.

Townships 18 and 19.—The survey here runs easterly from a point near Spatsum station on the Canadian Pacific Railway. The only valuable land here suitable for agricultural purposes is the wild hay meadows which lie in the valley of Pukaist creek. This valley begins about 6 miles east of Spatsum and runs southeasterly for about 6 miles; it varies from a quarter mile to a half mile in width. The elevation is from 2,500 feet to 3,000 feet above Thompson river. There is a trail or rough wagon road from Spatsum to the valley. The best meadow land has been used and claimed by cattle ranchers for ten years or more. The meadows have been improved and the hay has been cut each year. Several dwelling houses and a number of cattle sheds have been built. The land could not be dealt with for lack of a survey.—*Jos. E. Ross, D.L.S., 1903.*

Ranges 24 and 25.

Townships 19 and 20.—The best land in these townships was taken up in provincial lots from 20 to 30 years ago. The land required to be surveyed lay between and adjoining these lots. The country is open and rolling, with some bench land fit for farming. The locality being dry, irrigation has to be resorted to in order to raise good crops. The benches are from 400 to 500 feet above Thompson river.—*Jos. E. Ross, D.L.S., 1903.*

Range 25.

Townships 18 and 19.—The land surveyed in these townships lies in the Venables valley. Most of the valley has been taken up in provincial lots. There is a small patch at both the upper and lower ends of the provincial grants, suitable for farming purposes. The land lies a few miles west of Spatsum station on the Canadian Pacific Railway at an elevation of 1,500 feet above Thompson river.—*Jos. E. Ross, D.L.S., 1903.*

Ranges 28 and 29.

Township 4.—There is a little land fit for settlement near Trout lake in section 32 and northeastward up the valley, but not a large amount and very hard to clear. The timber is cedar, fir, hemlock and alder and is very dense. At the mouth of Trout lake creek is a good boat landing and camping place.—*A. W. Johnson, D.L.S., 1903.*

Township 5.—There is no land fit for settlement with the possible exception of spots at the north end of Cascade bay. There is not much good timber, the mountain being very steep and rocky. At the north of Slollicum creek is a good boat landing and camping ground. This creek falls two or three thousand feet in a distance of less

than a mile, and would afford enormous water-power.—*A. W. Johnson, D.L.S., 1903.*

Township 6.—The only land fit for settlement is at the mouth of Fifteen-mile creek in section 31, and there is little good timber in the township.—*A. W. Johnson, D.L.S., 1903.*

Range 30.

Township 3.—That part of Queen's island adjoining the seventh meridian to the eastward, comprising parts of sections 8 and 9 in this township is low cottonwood land with rich soil, but subject to flood at exceptionally high water, though safe in ordinary years. The land is not very difficult to clear. I also traversed some islands and sand bars in sections 5 and 9, which were formed during the high water of 1894 and are not shown on the latest township plan. There is good fir and cedar on the mountain, and a little land in the northeast quarter of section 36 where a small clearing has been made but abandoned.—*A. W. Johnson, D.L.S., 1903.*

Township 4.—The canyon has in most places throughout its entire length almost perpendicular sides, sometimes 300 feet high, the creek being one long series of rapids requiring the greatest caution. There is practically no level land after the canyon begins, but the timber is very good, fir, cedar and hemlock, with no brulé. The timber in the northern part of this township is exceptionally fine, and a logging camp is at work there belonging to the Harrison River Lumber Company (since bought out by a Rat Portage firm I believe). The timber is finer than anything I have seen in the railway belt, both cedar and fir ranging from 3 to 7 feet in diameter, and frequently as high as 10 feet. I noticed one fir that was 15 feet in diameter. The cedar is much sounder than is generally the case in this province, and the fir very clear of knots and of unusually good grain. But though the timber is good the river is very much the reverse, and from what I could see it would be as cheap to put in a light railway from the lake as to do the necessary blasting in and piling below the canyon, which would be unavoidable were the river used for driving. These remarks about the timber apply to the whole of the valley as far as the railway belt limit. The creek has no falls between the lake and Harrison river, but from a rough approximation by stadia the difference in level is nearly 900 feet.—*A. W. Johnson, D.L.S., 1903.*

Township 5.—There is some yellow cedar on the west side of Chehalis lake, and the common cedar though smaller as you get higher is good for 3,000 feet above the water. A log jamb a quarter of a mile long blocks the creek at the south end of the lake. The mountains rise precipitously from the water, and Skwellepil creek on the west side has its source in snow-capped peaks seven or eight thousand feet high. There is a fall of 40 feet on Skwellepil creek.—*A. W. Johnson, D.L.S., 1903.*

Township 6.—There is a flat at the head of the lake about a mile and a half long, averaging 30 chains in width, with some good soil. The timber on it is the finest in the valley. Beyond this, right up to the railway belt limit, Eagle creek falls through a canyon similar to that of Chehalis creek, and the mountains close in on both sides. About two miles up Eagle creek, from the head of the lake, the creek falls over a rock 60 feet high. Stadia creek rises in glaciers in the same range as does Skwellepil creek, some three or four miles from its junction with Eagle creek. The timber is very good all the way, and extends high up the mountain sides, but beyond the flat already mentioned there is no land fit for settlement. From the railway belt limit to the head of Chehalis lake, Eagle creek falls 700 feet.—*A. W. Johnson, D.L.S., 1903.*

Townships East of the Coast Meridian.

Township 19.—There is some good land on Sumas mountain, in the west half of sections 28 and 33, suitable for fruit-raising, but on slopes much too great for ordinary

farming. The timber on the mountain is mainly alder and second-growth fir, with some larger fir in places, but not very difficult to clear. In sections 34 and 35 there is some grazing land, but this is under water in summer.—*A. W. Johnson, D.L.S., 1903.*

Township 20.—The mountain is very steep and quite unfit for settlement in any section we worked in, and the bottom land only fit for grazing, as it floods annually.—*A. W. Johnson, D.L.S., 1903.*

Townships 22 and 23.—Sumas lake is very shallow, and for many months every year a large part of it is a mere flat. There is a good blue clay soil, about 5 feet deep, at all corners that we had to dig, on both sides of the lake, which is totally useless till the lake is drained and a dyke built from Sumas mountain to Chilliwack mountain. Whether that is practicable or not I have not sufficient data to say, but if so it would open twenty square miles of what might be made the most fertile land in the province. —*A. W. Johnson, D.L.S., 1903.*

APPENDIX No. 12 TO THE REPORT OF THE SURVEYOR GENERAL.

REPORT OF P. R. A. BELANGER, D.L.S.

RESTORATION OF SURVEY MARKS IN PART OF DISTRICT OF ASSINIBOIA.

OTTAWA, February 22, 1904.

E. DEVILLE, Esq.,
Surveyor General,
Ottawa.

SIR,—I have the honour to submit a general report of my survey operations during last season.

In compliance with your instructions, dated March 28, 1903, allotting me the restoration of survey marks in a portion of the Assiniboia district, I left home on April 3 for Yorkton, the site of my last season's headquarters, where I had left my horses and outfit for wintering, and arrived there on the 7th of the same month.

After spending a few days at that place to organize my party and complete the outfit, I shipped the whole on cars to Binscarth, and thence drove to the point where I intended commencing work, east of Moose mountain, passing through Fort Ellice and Moosomin.

At the latter place I met three of my assistants, Messrs. Steele, Moore and Engler, together with seventeen of my men who had just arrived from Winnipeg, and after having made arrangements for supplies and their transport I proceeded to my initial point in township 9, range 34, west of the principal meridian, where I arrived and camped on April 20.

The next day was employed in instructing all members of the party in their duties in that kind of surveying, after which the work was carried on with no more loss of time than that involved in the long move from this district to the Touchwood hills district, and similar long moves to other parts of the country.

The first block in which I restored the survey marks consisted of townships 6, 7, 8 and 9, in ranges 30 to 34 inclusive, and also township 5 in ranges 33 and 34, all west of the principal meridian.

All these townships are open prairie, and were supposed to be originally marked with wooden posts and mounds; however, one of them, viz., township 9 in range 32, though shown in the original field notes as having been marked with mounds had, with the exception of three or four corners, all been marked with wooden posts only, of which but a small burnt portion remained to indicate the location of the old marks.

In township 6, ranges 31 and 32, two sets of mounds were found marking the same corners. These townships had been sub-divided by two different surveyors, the last survey being made in 1889 by D.L.S. Brownlee, who put up new marks but did not destroy the old ones. I renewed the monuments established by Mr. Brownlee, and destroyed the others. His survey had been marked with iron posts where required, but only a few of them could be found. However, I had no trouble in finding the right mounds as I located them at the proper distances, and they were easily recognized by their size and the position of the pits, which were in all cases of larger dimensions than those of the original subdivision, which latter I generally found at distances varying from 20 links up to as much as 9 chains away from the right position. At some corners I had even to destroy two mounds. This would indicate that the first sub-divider was very uncertain as to the accuracy of his work, and duplicated his marks in the hope that one at least would be at the right place.

As the regulations of the new manual could not always be followed to the letter for this kind of survey, I believe a few explanations will be necessary.

The restoration of survey marks in this prairie country was made as follows:—

The section corners were re-marked by putting an iron post properly marked in the centre of the old mound and by re-digging the pits to their full size. Such corners are described on my plan as I. P. pits.

The witness marks for section corners were also renewed by placing an iron post in the centre of the old mound and re-digging the trench around the mound. When the distance of the witness monument to the true corner was known it was marked on the post, but when unknown, the post was only marked with the letters 'W.T.,' and these monuments are described on my plans as 'Wit. I.P.T. re-dug,' plus the distance when known.

When witness mounds were found marking quarter-section corners, these were restored by re-digging the trench only, and are shown on plans as 'Wit. T. re-dug.'

As to ordinary quarter-section corners, they were re-marked by digging new pits at the proper distance from the centre of the old mound, and such corners are indicated on my plans by the word 'Pits,' but in no case were the old mounds destroyed.

This prairie country was generally not found to be much settled when I reached there, but I noticed that new settlers were coming in every day and taking up land as soon as it was re-marked, and as this tract of country lies adjacent to a branch of the Canadian Pacific Railway known as the 'Arcola Division,' which crosses township 7 in ranges 30 to 34, and the soil is good, I have no doubt that all the land available for homesteading will be taken up within a year.

Owing to the want of proper marks, some settlers who took up homesteads in that country in 1902, and had made improvements thereon by putting up buildings and breaking land, had to remove when they found they had located on the wrong sections.

On June 9, having completed the restoration of survey marks east of Moose mountain, I proceeded to Touchwood Hills.

On my way, I spent two days in the valley of Qu'Appelle river, making a traverse of the river across township 19 A, range 11, west of the second meridian, together with the measurement of a couple of lines, as requested by your instructions, which I had received a few days before, and in the forenoon of the 19th I reached my second block of surveys and camped in township 24, range 14, west of the second meridian, commencing work the same afternoon.

Here I restored the survey marks in thirty-two townships, nine of which had mostly all been marked with wooden posts, though they were generally open country and partly shown in the official notes as having been marked with posts and mounds.

In these the marks were so badly obliterated by the action of the weather and fires that nothing but rotten and charred remains of posts were left to indicate the corners.

Numerous intending settlers went over these townships last spring with the intention of taking up lands, but were unable to find a single post to locate a homestead.

This second block was re-marked as above described for open townships east of Moose mountain when mounds were found, but as wood could be obtained within a short distance, wooden posts were added to pits at quarter-section corners, but when corners were only found marked with posts, these were always renewed according to the manual whenever possible. However, in places where section corners had been originally marked only with wooden posts in marshes where a mound or pits could not easily be added, I re-marked them with an iron post witnessed by a wooden post planted a few inches behind it.

As to quarter-section corners falling under same circumstances, they were renewed by a new wooden post only. These corners are indicated on plans as 'I. P. and W. P.' or 'W. P.,' respectively.

Though the new manual does not provide for such marking, I considered it better to renew such corners in that manner than to leave them unmarked.

While at Touchwood Hills, I also complied with your instructions by commencing the subdivision of the unsurveyed part of township 26, range 16, but owing to the extremely wet character of the country, I regret to say that this survey had to be postponed.

The tract of land I passed over in this district is all of very good quality for mixed farming, principally that part known as the 'Round Plain.' The great drawback to its settlement was the want of proper survey marks, and also its distance from railway communication, but now these obstacles have been partly removed by the resurvey and the advantage afforded by the extension of the Canadian Pacific Railway branch, known as the 'Pheasant Forks Branch,' which was under construction last summer and runs near the southern part of this tract of land, and the proposed Grand Trunk Pacific Railway, which, it is supposed, will cross through the 'Round Plain,' and also the 'Yorkton Branch,' on which rails have been laid to Sheho and the grading extended to Fishing Lake.

After the completion of the surveys in the Touchwood Hills district, I proceeded on October 20 to township 26, range 30, west of the principal meridian, in compliance with your instructions requesting the restoration of survey marks in that township. On my way, I restored the corners in township 27, range 7, and township 28, ranges 2, 3 and 6, and reached my destination on November 10.

Here I spent three days restoring the marks of this township, but failed to complete it owing to the condition of Assiniboine river, which was at the time full of ice, rendering it unfordable. One of my assistants with his party tried on the last day to cross it at a place where the ice had stopped during the night, but when in the middle of the stream the ice gave way under him, and it was with great difficulty that he extricated himself from his dangerous position. This was enough to scare his party who would not venture another trial.

Though not completed, there are only two or three sections in this township left unrestored, and these are mostly all situated on the banks of the river.

From this township I turned westward to the townships extending along the Canadian Pacific Railway between Saltcoats and Yorkton and whose resurvey had also been allotted to me, but after spending one day in each of three of these, viz.: townships 24 and 25, range 1 and township 25, range 2, I discontinued work, considering it a waste of time and money to re-mark townships where the land is all occupied and the survey marks in fair condition.

On November 21, the ground being frozen and the snow already nine inches deep, I decided to discontinue the restoration of survey marks and proceed to Foam Lake to make the traverse of the same, but after communicating with you on this subject, it was decided to abandon that survey. I therefore closed operations and discharged my party, leaving the outfit in care of Mr. Norman McDonald of Saltcoats for wintering.

During the course of my operations, I re-marked sixty-two townships, besides subdividing a part of a township.

In my restoration I endeavoured to re-mark at least two corners for every quarter-section in order to have it ready for intending settlers; however, in some cases when the land was occupied, this rule had to be departed from in order to avoid disturbance which the re-establishment of some corners might have caused, and therefore left them unmarked, but these may be considered as private survey work, and should be done at the expense of interested parties.

Before closing this report, I might also add that whenever the original monuments could not be found, and reference is made to them on plans as being 'unfound,' these were generally temporarily marked on the ground with a wooden post (un-marked), indicating the approximate position of such corners. However, I must say that this was done only for townships where wood could be obtained within a reasonable distance.

On December 1, I arrived in Ottawa and reported to you the next day.

I have the honour to be, sir, your obedient servant,

P. R. A. BELANGER, *D.L.S.*

APPENDIX No. 13 TO THE REPORT OF THE SURVEYOR GENERAL.

REPORT OF J. J. DALTON, D.T.S.

SURVEY OF TOWNSHIP LINES NORTH OF BATTLEFORD.

MILTON, ONT., February 15, 1904.

E. DEVILLE, Esq.,
Surveyor General,
Ottawa.

SIR,—I have the honour to submit the following report on the surveys performed by me during the past season, under your instructions of March 31, 1903.

The work allotted to me was to run the meridian outlines of townships 52 and 51 in ranges 16 to 21, all inclusive; townships 49 and 50, ranges 19 and 20; townships 53 and 54, range 24; township 54, range 25; townships 55 and 56, ranges 24 to 27; the base line to north of the latter townships and the townsite of Lloydminster, all the foregoing being west of the 3rd meridian. Besides the above, I restored the survey of the 15th base line across ranges 5 to 8, and ran all the meridian boundaries of these ranges south to Saskatchewan river.

I left home for the field of survey on April 4, and arrived at Winnipeg on the 6th (train seven hours late). I transacted some business here necessary for my survey, and then went to Brandon, where I arranged for the shipment of my carts, then pushed on to Prince Albert, where I met Mr. Saint Cyr, the surveyor appointed to run the 14th base line, from which I was instructed to commence my work.

It was most difficult to find suitable horses, for they were very scarce and expensive; but the greatest of annoying delays was the utter impossibility of getting freight over the Canadian Pacific Railway owing to the enormous over-crowding of its various lines. Another difficulty of the present time is to obtain men of the proper qualifications. One may explain the difficulties and hardships of a survey as graphically as possible, still these men come with the greatest importunity, with recommendations and all, declaring that the life is just to their liking, but as soon as the novelty of the situation wears off they seem to think only of getting away, and with the greater pleasure at the inconvenience to the surveyor.

Owing to these various inconveniences, I was not able to leave Prince Albert until May 4 (noon), and travelled about eleven miles that day. I overtook Mr. Saint Cyr at Carlton, and accompanied him through to his starting point (township 52, range 22, west 3rd meridian), and while waiting for my own starting point I made a creek crossing and trained my men carefully in their various duties, and then I followed Mr. Saint Cyr along the base line to the northeast corner township 52, range 21. At this point, on May 27, I turned off the angle and ran south one and a half miles after chaining one mile on the base line, and completed the line on June 2.

I ran successively the boundaries of each range until that of the 17th, where I could only run two miles owing to the obstruction of Midnight lake. From this point I went east to run the boundary of range 16, believing it to be more economical to finish along the base line and then go around to the south to finish the boundary of range 17, then to take the much more laborious way of following around Midnight lake and completing range 17 first, which would involve four or five days unnecessary and very hard travelling.

In moving around to reach the northeast corner of township 52, range 16, I followed Mr. Saint Cyr's trail, and passed in to the east of what is known as Long lake, finding myself in range 15, and the township corner somewhere in the said lake. It

was necessary then to run south on a sub-dividing line, which in this case was the east boundary of section 32. I ran this line several miles; then I found it necessary to make a right-angled traverse to arrive at the required boundary.

This part of the work was most discouraging to the men, and almost disastrous to the horses owing to the swamps, rain and flies. We suffered further difficulties from the same as we progressed, but completed the line on July 11. I then moved west to run the chord across range 17, preparatory to running its east boundary, as Midnight lake could not practically be triangulated. I tried to observe on the evening of my arrival but it proved too cloudy, nor was observation possible while running this line. I observed successfully though when at the east end of the chord and ran north to Midnight lake and south to the correction line. On the following morning (21st) I moved my camp into the southerly part of township 49, range 18, in order to run the east boundary of range 19. At this point I met Mr. Gore, D.L.S., who informed me that he had already run the east boundary of both ranges 19 and 20, so I sent to Jackfish for the balance of my supplies in store there, intending to go west on the morrow. However, heavy rains prevented any further move until the 25th, when after much difficulty I arrived at the crossing of Turtle lake creek, where heavy rains delayed me another day. On the 29th I arrived in township 53, range 23, and after some difficulty I found some cutting on the old line, and the next morning two monuments also on the base line. Taking up the east boundary of township 52, range 24, I produced it north, and then corrected this by observation.

On July 15, I sent a team to Prince Albert for supplies, and on account of its non-arrival, on August 3 I sent a team to meet it as it was now six days overdue, and the supplies were running short. Owing to this discomfort I was able to employ my party only the half of each day, and on the 8th, the teams not yet arriving, I started (myself) with the buckboard and a man to go to Battleford if necessary to buy supplies. Arriving at Jackfish crossing (70 miles from camp) on Sunday, 9th, at noon, I saw my team coming in the distance. The cause given for delay was heavy rains and a sick horse, which to all appearances was plausible enough. I took the necessary supplies and hastened to return, arriving on the 10th. On the 12th I finished my line, and the teams arrived on the 13th. I moved camp on the 14th in what was (owing to the high water rendering one of the creeks impassible) a round about course to township 54, range 25. We had heavy rains on the morning of the 15th, but in the afternoon I was able to explore for the old survey lines. On the 17th I commenced the line, moved camp five miles through bush and observed. Completing the line on the 21st, I moved towards Onion Lake village, which the next day I passed, and going north camped at noon, and spent the balance of the day in exploring for a road. The following week was also spent in searching for a way to reach the northwest corner of township 56, range 27, but I was unsuccessful. The week was very much broken with rains.

I wired you advising a postponement of the survey, which you granted, and sent me to outline the townships west of the fourth meridian, from which I was recalled to survey the townsite of Lloydminster. On arrival at this place on September 25 I proceeded at once to search out the land marks, make posts and general preparations for the survey of the townsite.

Although I had both wired and written to have my letters forwarded to Lloydminster by first mail, they did not arrive. My horses were sick, and generally too worn out to make the trip in any reasonable time. Mr. Lloyd having urgent business in Battleford kindly undertook to care for my mail. I thought it much more advantageous than sending my own team. I therefore entrusted him to bring me your instructions.

Many of the colonists complaining that their land marks could not be found, I spent all my spare time in restoring their lines while waiting the arrival of my instructions, but as iron posts were limited in number, I confined myself to running the lines, re-digging the pits, &c., without planting iron posts.

Your letter of instructions was received on the night of October 5, and the measurements of the townsite were finished on the 15th. Then, under your further instructions, I resumed the outline survey west of the fourth meridian. On November 13 I discharged all those of my party whose homes were in the Egg Lake settlement, and commenced my return to Prince Albert with my cook and two men. The journey was tedious, for several of my horses were still sick, and I was overtaken with snowstorms, and was obliged to travel by rougher roads than I should have otherwise done, in order to secure fodder for my horses.

Several times we had to camp at Doukhobor villages, the inhabitants of which were very kind to us, helping in every way possible such as caring for my horses, providing straw for and helping with the tents, &c. I was delighted, too, with the care that they bestow on their live stock, and pleased also with the good fortune of some of the contracting surveyors' horses, which were fortunate enough to be wintering at one of these villages.

I arrived at Prince Albert on the evening of December 8, and after settling accounts, arranging sale of horses, storing outfit, &c., I departed for home, arriving there on December 18.

Throughout the district of survey I saw no minerals, stone quarries, coal, lignite nor petroleum, but I think that mill sites might be obtained on Turtle Lake creek. Game is not plentiful; we saw a few deer, one bear, and frequently prairie chicken, wild duck and hares.

I have the honour to be, sir, your obedient servant,

JOHN J. DALTON, *D.T.S.*

APPENDIX NO. 14 TO THE REPORT OF THE SURVEYOR GENERAL.

REPORT OF LOUIS E. FONTAINE, D.L.S.

Surveys in Southern Alberta.

Lévis, P.Q., March 14, 1904.

E. Deville, Esq.,
Surveyor General,
Ottawa.

Sir,—I have the honour to submit the following report of my field operations in southern Alberta, in accordance with your instructions, dated the 31st day of March last.

On receipt of your instructions, I made a few preliminary preparations, and then left for Edmonton in order to obtain my outfit, left there the previous fall. From Edmonton I went to Pincher Creek, where I organized my party, and left on the 1st day of May for township 8, range 29, west of the fourth meridian, where I was to begin the season's operations. From this date, township subdivision work was carried on until the 11th day of November, when, owing to the heavy snow, I decided to close the season; I therefore took the party to High River, and disbanded it on the 13th of that month.

During the course of the season, subdivision was performed in thirteen different townships, making a total mileage of 272 miles, and as a separate detailed report has been made for each township, I will here give but a brief description of the territory in which the operations were carried on.

The territory covered during the season was situated entirely in the Porcupine Hills. It is a succession of ridges of various height, with intervening coulees and small valleys, and containing in most of its principal depressions the bed of a small stream or rivulet. The soil is in general a rich loam on a clay subsoil, but its value for farming purposes is very problematic on account of the limited area of level land and the prevailing early frosts.

This region is easy of access from the south by good trails from Cowley, a distribution point on the Crow's Nest Pass Railway, and also on the east from most of the station points on the Calgary and Edmonton Railway.

In conclusion, I may say that ranching would be the best occupation for those settling in this region, as there is good shelter afforded by the hills for the cattle, the grass is rich and abundant, and the water supply is permanent.

Before closing this report, I must say that I take great pleasure in recording my appreciation of the ability and good-will of my assistant, Mr. Maitland L. Gordon, in performing his share of the work.

I have the honour to be, sir, your obedient servant,

LOUIS E. FONTAINE, *D.L.S.*

APPENDIX No. 15 TO THE REPORT OF THE SURVEYOR GENERAL.

REPORT OF ERNEST W. HUBBELL, D.L.S.

RE-SURVEYS IN NORTHERN ALBERTA.

OTTAWA, January 4, 1904.

E. DEVILLE, Esq.,
Surveyor General,
Ottawa.

SIR,—I have the honour to submit the following general report of my field operations during the past season in northern Alberta, in compliance with your instructions, dated March 27, 1903.

I left Ottawa April 9 and arrived in Winnipeg on the 11th, where I delivered your order to the Manitoba Cartage Company for one hundred iron posts, with the written request to forward thirty of them by express to Wetaskiwin, having learned that freight traffic was in a state of congestion and the delivery of freight in that district uncertain. I arrived at Edmonton on the 16th, purchased my survey supplies, and left for Wetaskiwin on the 18th, where I organized my party, and received from Mr. Viau seven of the nine survey horses which he had wintered for Mr. Fontaine, D.L.S., (two having died during the winter).

These seven horses were in such a wretched condition that they were unable to haul the wagons and camp equipage to my camp, distant one-half mile from the station. I therefore decided to commence work on the spot, *i.e.*, the re-survey of township 46, range 24, west of the fourth meridian; by so doing my horses would have a chance to recuperate, otherwise to move camp it would be necessary to purchase a new lot. Only five proved to be useful; of the remaining two, one died in the street of Wetaskiwin and the other, being cared for by a farmer for six months with no good results and no possibility of any, I gave him in payment for the trouble and expenses therewith. I, however, with your consent, purchased one good serviceable team, which gave entire satisfaction.

On April 20, I pitched camp on section 14, township 46, range 24, close to the town of Wetaskiwin, and on the 22nd commenced the re-survey of this township, beginning at the northeast corner of section 17. Beginning field work so early in the spring, a great part of this township was covered with snow, and there was also considerable ice in the numerous sloughs, which were quite deep. Consequently, several corners were inaccessible, although shown to be on dry land in the original survey notes. I retraced all this township with its outlines (sixty-six miles), and renewed corners wherever found, making several in water, which was ten to eighteen inches deep. This township, being fenced, no deviation was permitted from following the road allowances, which, being very muddy, made progress very slow. This township is all settled, has fine buildings and is well under cultivation. The town of Wetaskiwin is situated on section 14.

On May 7 we finished all the re-posting which, under the circumstances, could be done, and on the 9th, with the assistance of an extra team of horses, moved camp twenty-five miles to Stony creek, section 21, township 46, range 20, the trails being in far better condition than in the early spring, and a little grass was commencing to grow.

On May 11, I commenced the re-survey of township 46, range 20, beginning at the northeast corner of section 21. Many of the corners were difficult to locate, and

the original surveyed lines so overgrown with second growth poplar and willow that it necessitated re-cutting, and all the lines had to be chained as carefully as on an original survey. This township is about one-half covered with small poplar and willow and divided in about the centre from north to south by Stony creek, a stream three feet deep, with banks in many places one hundred feet or more high, in which in places seams of lignite coal can be seen. The soil is of good quality, and the township is nearly all settled, with an excellent class of well-to-do farmers. On the 18th and 19th we had a continuous snowstorm, which covered the ground in many places to the depth of twelve inches, suspending work and traffic for a few days. On the 27th, I finished the re-survey of this township, and moved camp to Driedmeat creek, section 16, township 45, range 19. From this camp I finished the re-survey of township 45, ranges 19 and 20, which lie to the north of Battle river. Wherever there was bush the lines had to be re-opened, and in all cases the distances between survey monuments chained. Even with these precautions many of the corners were difficult to find, the pits being filled and the posts almost destroyed by fire or rot.

On June 10, we finished work in this vicinity, and moved camp to section 16, township 45, range 18, which I proceeded to re-survey, completing the same by June 24. We were delayed somewhat in our work by the almost incessant rain. This is a fine township, and well settled. From here I moved camp on June 25 to township 45, range 17, and finished the re-survey of same by July 7. On the east boundary of section 9, running south, I found the quarter-section measured but thirty-seven chains. I made no correction, as the land on either side is patented and owned by the same man. As usual, we had considerable rain whilst at work in this township.

On July 8 we moved camp into township 45, range 16, and completed the re-survey of the same by the 18th. There are but few settlers in this township, which is well adapted for mixed farming, the soil being first class.

On July 20 we moved camp into township 46, range 15, and completed the re-survey of same and outlines by August 1. This township was very wet and swampy, many of the corners being in water two to three feet deep. Although well adapted for settlement, apparently no settlers had taken homesteads.

On August 4 we moved camp into township 46, range 16, and completed the re-survey by August 12. This township is also wet and swampy, and many of the lines had to be re-opened. There is some fine poplar timber in the northern part and the township is well adapted for settlement.

On August 13 we moved camp into township 46, range 17, and completed its re-survey by August 27. We were delayed considerably in our work by rain. This township is well suited for settlement, there being plenty of wood and water; soil mostly good black loam. On the 28th we moved camp into township 46, range 18, and completed the resurvey of same by September 10. As usual, rain fell nearly every day; consequently, work was most disagreeable. On the 3rd we had a slight frost, the first of the season. There is considerable small poplar in this township, the soil being first class. On September 11 we moved camp to section 15, township 46, range 19, and completed the resurvey of same by the 21st. This township is fairly well timbered with small poplar and willow and has numerous ponds and large sloughs, many of the corners being in water. On September 12 we had the first flurry of snow.

On the 22nd we took a flying camp into township 45, range 18, for the purpose of replacing the wooden posts (which we had temporarily planted) with iron ones, not being supplied with these at the time of the resurvey. On September 23 we moved our flying camp into township 45, range 17, and replaced the wooden posts with iron ones.

On the 25th, in the midst of a snowstorm, we moved camp to township 46, range 21, the trails being muddy and heavy, especially across Stony Creek. On the 27th we commenced the resurvey of this township and completed same by October 12. This township is all settled, has forty-eight river lots (which required re-posting), is partly

covered with poplar and willow, and has numerous large ponds and deep sloughs. Many of the corners were very hard to find; altogether it was a trying and difficult township to resurvey.

On October 13 we moved camp to township 45, range 21, and finished the resurvey by October 26. The township is well settled, principally by Norwegians, who, being thrifty and resourceful, make splendid settlers. From here I moved camp into township 45, range 20, which I resurveyed, also the portions of township 46, range 20, and township 45, range 19, lying south of Battle River. I had completed to date the resurvey of fourteen townships with corresponding outlines or, roughly speaking, retraced about 800 miles of survey lines.

As cold weather was commencing, I decided not to attempt the resurvey of township 44, range 26, included in my allotment of work, but to complete the subdivision of township 52, range 12 west of the fourth meridian, as requested by you, and on November 3 we moved camp via Wetaskiwin en route for this township, where I arrived on November 14 and commenced work the next day by opening the north boundary of sections 21 and 22. I then completed the unsurveyed lines in this township and traversed some lakes. On November 30, not being properly equipped for winter work, and the snow being too deep for wagons, I could not, without much labour, move camp over the hilly frozen ground covered with heavy windfalls, and was therefore compelled to leave unfinished a few of the lakes that required traversing, and on December 1 started for Edmonton, where I arrived on the 5th, after a disagreeable trip of 125 miles. I then stored my outfit and horses for the winter with Mr. E. Stanton, a rancher who lives four miles out of Edmonton, paid off my party and arrived in Ottawa on December 15, reporting for duty at your office on the following day.

REMARKS.

1. *Schools.*—All the settled townships in which I worked are provided with excellent schoolhouses.

2. *Game.*—Duck, geese and prairie chicken were most plentiful; in fact, the surrounding country was a sportsman's paradise.

3. *Survey Monuments.*—During the season I renewed about 450 section corners, and found only seventeen iron section posts in the ground. Most of the original corners were in very bad shape, the posts burnt or rotted, and the pits filled, making it almost impossible for settlers to locate homesteads, and owing to the great quantity of rain which fell during the season, all the ponds and sloughs were very deep; many of the original corners, which are in the original survey shown on dry ground or in marshes, were in water two to three feet deep. When these corners were not found, I re-established them by witness mounds or trenches, having reported the circumstances to you and obtained your endorsation to my suggestions that this should be done; neither did I renew witness mounds for quarter-section corners.

I have the honour to be, sir, your obedient servant,

E. W. HUBBELL, *D.L.S.*

APPENDIX No. 16 TO THE REPORT OF THE SURVEYOR GENERAL.

REPORT OF A. W. JOHNSON, D.L.S.

SURVEY IN NEW WESTMINSTER DISTRICT.

HARRISON LAKE, B.C., June 24, 1904.

E. DEVILLE, Esq.,
Surveyor General,
Ottawa.

SIR,—I have the honour to submit the following report of my operations in New Westminster district during the season of 1903.

A beginning was made in township 3, range 30, west sixth meridian, on Queen's island and the adjacent islands and bars. This is good cottonwood bottom land, but subject to flood during exceptionally high water, and is cut away a good deal every year. New bars are constantly forming, and old ones washing away. On the completion of the work here we canoed down to Sumas lake, which at this time of year (March) is separated from the vegetation on its shores by a mile of mud. The work consisted largely of locating old lot boundaries. These lots were in many instances surveyed thirty years ago, and being wholly under water three or four months every year and a swamp for the remaining eight or nine, have lost nearly all their original corner posts. Occasionally we found an old fence corner, or even a row of old fence posts which evidently stood on the original boundary, but in some cases even these were not available, and I had to depend entirely on the old notes and the topography as shown in them. I spent a great deal of time over this old work in townships 19, 20, 22 and 23, east of the coast meridian, and in many places planted cedar posts eight or ten feet long and ten inches square at corners. I don't think that these will be washed out for many years.

We then moved by water to Harrison river, and after running a few lines and doing some traversing in the northeast part of township 3, range 30, west sixth meridian, started up the Chehalis canyon to get at the north limit of the railway belt. Chehalis creek follows a canyon from the lake to within two miles of its discharge into Harrison river, a distance of some nine miles. In this space it falls considerably over twelve hundred feet. The walls are precipitous, often perpendicular, in places four hundred feet high, so that it is not easy to get up with a canoe. Our first attempt ended in a broken canoe and a transit under water, but later when the creek was lower we did get up, and ran a stadia traverse to check the section lines run up the valley. The whole district is heavily timbered, and nearly all taken up. As far as I know it is the finest bunch of timber in the railway belt. The fir and cedar often are as much as ten feet in diameter, and I saw one fir that was fifteen. The only land that could be called good lies at the north end of Chehalis lake, but it is quite inaccessible at present for settlers.

In the middle of August we went to Harrison Hot Springs and began a traverse of the east side of Harrison lake, first retracing the southeast quarter of section 13, township 4, range 29, west sixth meridian. The centre of this section was our starting point. I also ran a triangulation up the lake to check the other work. There is some good land on Trout lake in township 4, range 28, but heavily timbered and very hard to clear. I went as far as the north limit of the railway belt on the east side of the lake, at the north boundary of township 7, and placed section corners and ran what lines I could on the way.

Wet weather put an end to our work here, and on November 1 we left for Mamette lake in the dry belt. We lost an engine in the Fraser canyon on the way up, but were only delayed a day on that account, and got to work on the south limit of the railway belt in township 17, range 21, west sixth meridian, on the 6th. We ran twenty-five miles of the limit before coming in for the winter on December 16.

I have the honour to be, sir,

Your obedient servant,

ALFRED W. JOHNSON, *D.L.S.*

APPENDX No. 17 TO THE REPORT OF THE SURVEYOR GENERAL.

REPORT OF G. J. LONERGAN, D.L.S.

RE-SURVEYS IN THE EDMONTON DISTRICT.

BUCKINGHAM, QUE., April 10, 1904.

E. DEVILLE, Esq.,
Surveyor General,
Ottawa.

SIR,—I have the honour to submit the following report of a re-survey in the Edmonton district, west of the fourth meridian, under your instructions dated April 1, 1903.

I left Ottawa on April 14 and went to Pincher, where I secured my personal effects of the previous year and had them shipped to Strathcona, where I purchased horses and supplies. I experienced some difficulty in buying horses, the inrush of settlers creating considerable demand for them, as well as the prevailing idea amongst the people that the government is rich and should not object to paying about fifty per cent more for an article than it really is worth. On April 28, I started from Strathcona for township 54, range 20, and after much hard work pulling through the mud I arrived on April 30.

On the following day I commenced to trace up old lines with a compass and by following old cuttings, but finding so many old posts missing I was obliged to use a transit and carry on a survey, connecting all lines by angles. Sections 7, 18, 19 and 30, are the only sections in which the land has anything of a promising appearance. The remainder of the township is rolling with light sandy soil and contains numerous lakes of from ten to fifteen chains in width with some over half a mile, and many muskegs and sloughs.

Township 55, range 20.—I re-surveyed the south half of this township. One settler had located that spring on section 12, and said that he was thinking of abandoning his homestead as he considered the soil no good. A few settlers were living in the southwest corner of the township, and appeared to be making a fair living. The township is thickly wooded with poplar and willow scrub with a few tamarack swamps, and in places scattered clumps of poplar six to eight inches in diameter. I completed the survey of the south half of the tonwship, and reached Fort Saskatchewan on May 27. On the following day I purchased supplies and started for township 57, range 21. The southeast angle of this township was marked by an iron bar placed in the bed of Red creek, but it could not be found. I re-established the corner from two bearing trees and ran westerly along the old cutting, and at a distance of five miles I found the first old post. Very few of the old posts were found in the township, those that were, being on the east and northeast part of it where the land was low and swampy. Four settlers only had located in township 57, range 21, and that part of 57, range 20, that is on the west side of Saskatchewan river. The soil for the most part is gravel or sand, three or four sections only were favoured with a little sandy loam.

While at work in these two townships the continual rains filled every hollow with water and the banks of Red creek overflowed and in places it was three-quarters of a mile wide and remained that way for four weeks.

On August 3, under your further instructions, dated July 9, I made a traverse of the lake in sections 27 and 28, township 57, range 23, west of the fourth meridian.

When this was completed I returned to the re-survey of township 57, range 20. This part of the township is thickly settled and the soil is good.

Township 57, ranges 18 and 19.—In these two townships very few old posts were found. The soil is light and sandy, and over fifty per cent of the area is sloughs, marshes or muskegs. All through my work I found it necessary to use a transit. The old cut lines could be followed only in places and most of the old posts were not to be found, and generally speaking, the only result of the previous survey was to give a little more work looking for posts that could not be found.

I have the honour to be, sir,

Your obedient servant,

G. J. LONERGAN.

APPENDIX No. 18 TO THE REPORT OF THE SURVEYOR GENERAL.

REPORT OF JOS. E. ROSS, D.L.S.

SURVEYS IN THE RAILWAY BELT IN BRITISH COLUMBIA.

KAMLOOPS, B.C., January 25, 1904.

E. DEVILLE, Esq.,
Surveyor General,
Ottawa.

SIR,—I have the honour to submit the following report on my past season's operations in the railway belt in the province of British Columbia.

The first work of the season was a traverse of the Columbia river from Golden to the southerly limit of the railway belt. The Columbia river valley having previously been surveyed into sections, I connected with all the section corners I could conveniently find. The survey was made in winter in order to take advantage of the ice. If done at another season of the year it would have been a long and tedious operation, as the banks of the river are covered with a dense growth of small timber and brush, and the land along the river is nearly all low and marshy, much cut up with sloughs, and subject to overflow at high water.

From here I went to Sicamous and made a number of small surveys between that point and Kamloops. This work consisted mostly of re-survey of old provincial lots and connections with the Dominion lands system. I also ran a few section lines, being an extension of the Dominion surveys, to include a few outlying patches of land, fit for settlement, which had been overlooked in the original surveys. The only difficulty in connection with this work was that some of the lot boundaries could not be found on account of the corners not being permanently marked on the original provincial survey. One lot near Kamloops and several on the North Thompson river could not be located.

My next work was a survey of the southerly limit of the railway belt from the Spallumcheen valley to the Okanagan valley. The country traversed is mostly rough and mountainous. There are a few sections in the Spallumcheen valley near the mouth of Trinity creek that are suitable for farming purposes. The drawback at present is the lack of a road to connect with the adjacent settlements, and the barriers that lie in the way of constructing such a road, as the river lies on one side and the mountains on the other. I saw only a few patches of good timber on the whole survey. In places the timber has been completely burned off.

On finishing the work here I went to Grande Prairie, a settlement on the Salmon river. The work here was mostly re-survey of old provincial lots, but a few section lines were added to the previous Dominion survey to meet the requirements of settlers.

From here I went to a point on the west side of the Thompson river about ten miles below Ashcroft, where I surveyed a few section lines and retraced old provincial lot boundaries in order that some sections which had been applied for could be dealt with. The same difficulty presented itself in connection with the survey of these lots, and some of them could not be located. The country is mostly open with some patches of good land on the benches. The climate being dry, the value of the land depends on whether water can be obtained for irrigation purposes or not.

On finishing here I crossed to the east side of the river and ran a survey from a point near Spatsum into the Highland valley. There are some good wild hay meadows here. These meadows have been improved, and have a considerable number of build-

ings on them, mostly cattlesheds. The hay has been cut by cattlemen for a great many years. The lands could not be dealt with for want of a survey. There is plenty of wood for fuel and building purposes but very little merchantable timber. The valley is about 3,000 feet above Thompson river. The land outside the meadows is not fit for agricultural purposes.

The summer was so wet during harvesting time that many of the farmers lost a portion of their crops, but this is something unusual for this part of the province.

I have the honour to be, sir,

Your obedient servant,

JOS. E. ROSS.

APPENDIX No. 19 TO THE REPORT OF THE SURVEYOR GENERAL.

REPORT OF ARTHUR SAINT-CYR, D.L.S.

SURVEY OF BLOCK OUTLINES WEST OF THE THIRD MERIDIAN.

LESSER SLAVE LAKE, April 20, 1904.

E. DEVILLE, Esq.,
Surveyor General,
Ottawa.

SIR,—I have the honour to submit my report on the survey of the 14th base line and meridian exteriors in the district of Saskatchewan during the season of 1903. The initial point of my work was the northeast corner of township 52, range 22, and the survey of the 14th base line was continued as far as the northeast corner of township 52, range 5, established by a previous survey.

The township outlines were those of townships 49, 50, 51 and 52 in range 13, situated in the Thickwood hills; also of townships 49, 50, 51 and 52 in range 9, lying west of the valley of Shell river; all west of the third meridian.

In compliance with your letter of March 8, requesting me to close my survey of the principal meridian in northern Manitoba, I went to Winnipeg, when on receipt of your instructions I proceeded to Prince Albert where I was to organize my party.

On April 28, I left for Emmaville, crossing the north branch of the Saskatchewan at old Fort Carlton, after which I followed the old cart trail to Battleford, passing on my way through the Doukhobor settlement near Prairie creek and Redberry lake.

Shortly after leaving Carlton crossing, the trail led across a tract of country which had been overrun by prairie fires late in the previous fall, and where the only available feed for horses was to be had at the Doukhobor villages. Wherever we stopped for lunch or camp, these people showed a readiness to give assistance without even being so much as asked for it, and they cheerfully brought for our horses hay and oats, of which they had a good supply. They also made us presents of butter, eggs, milk and vegetables, and showed us many other acts of kindness which proved that with them hospitality is considered a cardinal virtue. The youngsters who used to gather in numbers at our camping places were cleanly and good-natured, and it required very little persuasion to put them in a talkative mood, when would begin a regular flow of questions about the names and uses of every article which they saw around the camp. It was no small pleasure to watch the bright upturned faces of those children, ever eager to learn. These villagers have now abandoned the huts in which they spent their first winter in this country for more commodious and larger buildings, which they keep scrupulously clean. Each building is divided into two large rooms, one contains a loom, a spinning wheel and might be called the work room; the other, much the larger, is intended as a living apartment; on two of its sides are high, broad benches for reclining during sleeping hours. In the day-time, the bedding being taken out of doors, these benches are used as seats. In every building a Russian stove does the work of oven and heater. On its outside are many shelves which can be put to different uses. I have sometimes sat at their tables and enjoyed the meals which consisted of good wholesome food, though meat of any description was conspicuous by its absence. The bread, sponge-like, was always served hot from the oven and was delicious. These villagers are people of their word: whenever they had promised to bring us any supplies they were always found at our camp long before we were quite ready to start and never caused us any delay. They take the greatest care of their

horses and cattle, which are always in prime condition and kept in large roomy stables. Whenever the labourers return from the field, their wives come out to meet them. At the time of my passing they were busy preparing their land for seeding. Battleford was passed on May 15 and three days later I reached the prosperous settlement of Jackfish lake, which was to be my post office for the early part of the season, and there made a depot for my supplies. The country around Jackfish is very beautiful, especially along its eastern side; here a short distance from the lake rise a succession of hills on whose slopes could be seen hundreds of cattle grazing, whilst the bottom lands in the immediate vicinity of the lake were being put under cultivation. During the winter season, these cattle are driven north towards the timbered and hilly country near Birch lake where on the extensive hay meadows, which exist there, hay has been cut and stacked for them and the forest protects them from the cold north winds. No stabling is provided for them as it is not thought necessary.

On the north side of the lake the country is rolling and the soil of the best and, as early frosts are unknown in the neighbourhood of the lake, cereals and vegetables are successfully grown.

From Jackfish lake settlement I returned to the old Fort Pitt trail which I followed till well beyond Whitemud lake, where I took a newly opened wagon trail leading in a northwesterly direction towards Emmaville post office, west of Englishman river and within five miles of the northeast corner of township 52, range 22, the initial point of my survey.

I have the honour to be, sir,

Your obedient servant,

ARTHUR SAINT-CYR.

APPENDIX No. 20 TO THE REPORT OF THE SURVEYOR GENERAL.

REPORT OF J. N. WALLACE, D.L.S.

SURVEY OF TOWNSHIP OUTLINES IN ALBERTA, WEST OF FIFTH MERIDIAN.

CALGARY, ALTA., February 1, 1904.

E DEVILLE, Esq.,
Surveyor General,
Ottawa.

SIR,—I have the honour to submit the following report of my field operations last season during the survey of township outlines in Alberta, in accordance with your instructions of March 31, 1903.

I commenced to organize my party at Calgary on April 20, and having completed the greater part of this business, I left Calgary for Innisfail on the 25th. After travelling westerly from Innisfail some fifty miles, I reached the north-east corner of township 36, range 7, on May 1. I commenced work here in order that the outlines across Clearwater river might be run before the time of high water. Between May 1 and June 11 thirty-six miles were run, forming the east outlines of townships 35 and 36, ranges 6, 7 and 8. The summer floods from the snow in the mountains being now about due in the numerous large rivers crossed by the outlines to the south, it was not considered advisable to continue the work in a southerly direction till later in the season.

On June 12 I started for the northeast of township 40, range 6, and reached there on the 16th, after travelling nearly sixty miles. This district is some twenty miles northeast of the former Hudson Bay Company's post, called 'Rocky Mountain House.' This locality proved a very difficult one to survey, both on account of its great distance from the nearest source of supplies and by reason of the very heavy timber with which the lands are covered. Spruce running to three feet diameter and averaging sixteen inches occurred for miles along the outlines. To add to the difficulties, the weather was very unfavourable. The work was much delayed, and with such a distance and such bad roads the matter of keeping the party in supplies became a very troublesome one.

On August 28 thirty-six miles had been run here. I had still a large amount of work to do further south, more especially to run the east outlines of townships 29 to 34, range 8, which form part of the east boundary of the Rocky Mountains Park of Canada. It soon became apparent that if the work further south was to be finished during the season, a move would have to be made to get there at once.

Accordingly, on August 29 I moved back southerly to the southeast of township 33, range 7, reaching there on September 8, after a journey of nearly one hundred miles. Here the country was much more lightly timbered, and although very rough and hilly, good progress was made, and all the outlines here were completed by December 9.

On December 10 I started homeward, having completed in all one hundred and fifty-seven miles during the season, all of which were original base and outlines, except a mile and a half of restoration survey. Calgary was reached on December 11, and I paid off the party next day.

The townships outlined may be divided into three districts. The first district extends from fifteen to forty miles southeast of the Rocky Mountain House, and comprises part of the valleys of the Clearwater, Raven and James rivers and of Bearberry

creek. The second is immediately south of the first, and extends to within about ten miles of Morley. The third is quite distinct from the other two, and comprises some townships about twenty miles to the northeast of Rocky Mountain House. Of these three districts, the first is very much the most suitable for settlement, while the third has the most valuable timber.

Outlines Southeast of Rocky Mountain House.

These, amounting to sixty miles, form the outlines of townships 33 to 36, ranges 6 and 7. There is a great deal of open land, especially in that portion between the James and Raven rivers, and also about the central part of township 36, range 6. The locality can be reached either from Innisfail or from Olds. The road from Innisfail is not quite as good as the other, but it has the advantage of a bridge over the Red Deer river. When travelling from Olds this river must be forded—a dangerous undertaking at certain seasons.

Settlement is rapidly advancing in this district, although at the time of survey there were not any settlers in it.

Outlines North of Morley.

These comprise sixty miles along the east of townships 27 to 31, range 7, and 29 to 32 in range 8. They are all in the region of the foothills, and the greater part of the district is very hilly. Some good land occurs in the valleys, but it would be necessary for intending settlers to select land individually, as no extensive agricultural area occurs. The best lands are in the south of township 27 in ranges 6 and 7.

The foothills region proper is bounded by a line running northwesterly from the middle of the east boundary of township 30, range 7, to the northwest corner of township 32 in the same range. From here the hills continue on northwesterly, passing about eight miles west of the northwest corner of township 34, range 7.

The region west of this line may be generally described as consisting of long ridges of hills, 400 to 700 feet above the valleys, the hills becoming higher as they go farther west. These ridges extend in a markedly parallel direction of north-northwest. Between the ridges are flat valleys, half a mile to a mile wide, quite open or else with a little scrubby timber. Many of these valleys are very swampy. The ridges are irregularly timbered with small pine and poplar with a dense growth of alders on their northern slopes.

The northeasterly part of the district is not nearly as rough as the southwesterly part. Open lands are not common. There is a heavy growth of spruce and jackpine running to sixteen inches extending across the east outline of township 31, range 7, just south of Red Deer river.

The only road through this district is that from Morley. It is fairly good as far as Little Red Deer river, but north of this it is unsuited for a wagon except in the fall and winter. The snow in all this region, from Morley to Rocky Mountain House, is very light in winter on account of the frequency of the warm winds from the mountains.

Outlines Northeast of Rocky Mountain House.

These comprise the east outlines of townships 41 and 42, range 6, and of townships 41 to 44, range 7. The timber is in places very heavy. The most extensive area of large timber in the township named is probably bounded as follows:—

On the southwest by a line running from the southwest of section 13, township 41, range 6, to the northwest of section 18, township 42, in the same range. The northeast boundary would probably be a line from the southeast corner of township 42, range 6, to the northwest corner of section 6, township 43 in the same range, and

also further northwest. The timber is very large and grows thickly. Spruce running to three feet in diameter was frequently cut down on the outlines. The average size would be about sixteen inches. Jack pine and balsam fir also occur of the same dimensions. There are also many detached areas of large spruce especially in the southwest of township 41. and the northwest of township 44, in range 6.

Across the northeast of township 42, range 6, and for many miles to the north, the country has been devastated by fire within recent years, and the country is now a wilderness of standing burnt trees and huge logs piled over each other for miles. These logs make it impossible to get pack horses over the country. I could not therefore get my pack outfit far enough north to run the east of townships 43 and 44 in range 6. There is not much open land in this district. The value of the timber is much greater than that of the open land. Considering the inevitable fires which follow the smallest settlement and the abundance of good vacant land elsewhere, it seems very unwise that, for the sake of an isolated quarter-section here and there, settlers should be allowed to come indiscriminately into this district, and by their fires endanger thousands of dollars' worth of good timber. A moment's carelessness may destroy eighty or a hundred years of forest growth.

I have the honour to be, sir,

Your obedient servant,

J. N. WALLACE, *D.L.S.*

APPENDIX No. 21 TO THE REPORT OF THE SURVEYOR GENERAL.

Examination Papers of the Board of Examiners for Dominion Land Surveyors

EXAMINATION FOR ADMISSION AS ARTICLED PUPIL.

XXIII.

PENMANSHIP AND ORTHOGRAPHY.

Write a composition of not less than 200 words on "Surveying as a Profession."

ARITHMETIC AND LOGARITHMS.

(*Time, 3 hours.*)

	Marks.
1. Prove the rule for converting a recurring decimal to a vulgar fraction.	14
2. Find values of $(23.426)^3$, $(.01256)^{\frac{1}{5}}$, $(24.785)^{\frac{2}{3}}$ by logarithms.	14
3. Show that the product of the *H. C. F.* and *L. C. M.* of two numbers is equal to the product of the numbers themselves.	14
4. Reduce 403.75 square yards to the decimal of an acre.	14
5. The assessed value of a town is $4,857,600. The total taxes to be raised are $81,500, of which the school tax exceeds the combined municipal and special tax by 25 per cent, the municipal tax exceeding the special tax by 25 per cent also. What is the rate of taxation for the special tax ?	14
6. Find the numerical value of $\cos A \tan B \cot C$, when $A = 32^\circ\ 18'$, $B = 117^\circ\ 25'$, $C = 187^\circ\ 16'$.	15
7. The logarithmic sine of an angle = 9.6523480.	
" " cosine " = —9.4287215.	
" " secant " = 1.0456923.	
Find the angles accurately to the nearest second.	15

ALGEBRA.

(Time 3 hours.)

Marks.

1. Find the H. C. F. of $x^2 + 5x + 6$, $x^2 + 7x + 10$ and $x^2 + 12x + 20$; and the L. C. M. of $x - 1$, $x^2 + x + 1$, and $x^3 - 1$. — 14

2. A man has three nephews. His age is 50 and the joint ages of the nephews are 42. How long will it be before the joint ages of the nephews will be equal to the age of the uncle? — 14

3. Simplify $10a - 5\,[3a - 4b - 7\,\{2a + 5b - 3(a - b)\} + 5\,\{2b + 4(a + b)\}]$ — 14

and $\dfrac{x + \sqrt{x^2 - 1}}{x - \sqrt{x^2 - 1}} + \dfrac{x - \sqrt{x^2 - 1}}{x + \sqrt{x^2 - 1}}$

4. Solve the equations: $\dfrac{3 - 2x}{1 - 3x} - \dfrac{2x - 5}{2x - 7} = 1 - \dfrac{4x^2 - 1}{7 - 16x + 4x^2}$ — 14

and $\dfrac{x}{a + b} + \dfrac{y}{a - b} = 2a$, $\dfrac{x - y}{2ab} = \dfrac{x + y}{a^2 + b^2}$

5. The product of four consecutive numbers is 93024. Find them. — 14

6. How many minutes does it want to four o'clock, if three quarters of an hour ago it was twice as many minutes past two o'clock? — 15

7. A merchant bought a certain number of pieces of cloth for $375, and sold them at $18 a piece, and gained thereby 5 times the cost of one piece. How many pieces did he buy? — 15

PLANE GEOMETRY.

(Time 3 hours.)

Marks.

1. Prove geometrically $(a + b)^2 = a^2 + 2ab + b^2$. — 14

2. Describe a circle within a given triangle. — 14

3. Show that the bisectrix of an angle of a triangle is less than half the sum of the sides including the angle. — 14

4. If P is a point without a given circle, and PD a tangent to the circle, and PLA a straight line cutting the circle in L and A, show that $PD^2 = AP.LP$. — 14

5. Similar triangles are to each other as the squares of their homologous sides. — 14

6. The perimeter of a square is less than that of any other parallelogram of equal area. — 15

7. If an angle of a triangle be bisected by a straight line cutting the base, the segments of the base are proportional to the two sides containing the angle. — 15

PLANE GEOMETRY.

(Time 3 hours.)

	Marks.
8. Inscribe a circle in a given sector.	14
9. Divide a given arc of a circle into two parts which shall have their chords in a given ratio.	14
10. Prove geometrically for any triangle that $a^2 = b^2 + c^2 - 2bc \cos A$.	15
11. On a given straight line to describe a rectilineal figure similar and similarly situated to a given rectilineal figure.	14
12. If in a circle two chords intersect each other, then the product of the segments of one chord is equal to the product of the other.	14
13. If a straight line AD is divided equally at B and unequally at C ; show that $AC^2 + CD^2 = 2(AB^2 + BC^2)$.	15
14. Inscribe a pentagon in a given circle.	14

PLANE TRIGONOMETRY.

(Time 3 hours.)

	Marks.
1. Find the sine, cosine and tangent of 45° and also of 60°, without the use of tables.	14
2. A flagstaff 30 feet high stands on the top of a cliff, and from a point on the seashore the angles of elevation of the top and bottom of the flagstaff are 52° 17′ and 47° 28′ respectively ; find the height of the cliff.	14
3. Show that $\cot(a - b) = \dfrac{\cot a \cot b + 1}{\cot b - \cot a}$	14
4. Show that $\sin(A + B) \sin(A - B) = \sin^2 A - \sin^2 B$.	14
5. Show that the area of a triangle $= \sqrt{s(s-a)(s-b)(s-c)}$.	14
6. Two sides of a triangle are 17 and 19, the included angle 42° 13′, find the base.	15
7. The three sides of a triangle are 15, 18, 21 ; find one of the angles.	15

SESSIONAL PAPER No. 25a

SPHERICAL TRIGONOMETRY.

(Time, 3 hours.)

	Marks.
1. Prove that in a spherical triangle the sines of the sides are proportional to the sines of the opposite angles.	14
2. Show that Cos $a = \cos b \cos c + \sin b \sin c \cos A$.	14
3. Show that $\sin^2 \frac{1}{2} A = \frac{\sin (s-b) \sin (s-c)}{\sin b \sin c}$	14
4. Prove Napier's rules for the solution of right angled spherical triangles.	14
5. In a right angled triangle, the hypotenuse is 44° 34′ 30″ and one of the angles 2° 15′ ; what is the other angle ?	14
6. $A = 62° 18'$, $B = 74° 16'$, $C = 80° 10'$, find a.	15
7. $a = 52° 17'$, $b = 61° 18'$, $C = 46° 19'$, find c.	15

MENSURATION OF SUPERFICIES.

(Time, 3 hours.)

	Marks.
1. The sides of a triangular field are 10^c. 14, 12^c. 16 and 14^c.82. Find the area.	16
2. From the above triangle two acres are cut off by a straight line parallel to the shortest side. Find where it cuts the other sides.	16
3. How many square feet are contained in a regular pentagon whose side is 50 feet ?	17
4. From a solid metallic sphere 10 inches in diameter, a hollow cylinder is made whose outside diameter is equal to its height. The thickness of the metal in the cylinder is one-sixteenth of an inch ; what is the diameter of the cylinder ?	17
5. Into a cylindrical vessel 8 inches wide and 6 inches high is placed, base downward, a right cone of metal with base 6 inches in diameter and 10 inches high. How many cubic inches of water does it now take to fill the cylindrical vessel ?	17
6. What is the volume of a tetrahedron, with edge 4 inches ?	17

EXAMINATION FOR ADMISSION AS ARTICLED PUPIL.

XXIV.

PENMANSHIP AND ORTHOGRAPHY.

(Time 3 hours)

	Marks.
Penmanship	50
Orthography	200

Write a composition of not less than 200 words on "The relative advantages of Surveying and other professions.

ARITHMETIC AND LOGARITHMS.

(Time 3 hours.)

	Marks.
1. Simplify $\dfrac{1}{2+\dfrac{2}{4+\frac{5}{6}}} \times \dfrac{4862}{4147} \div \left(1\tfrac{1}{2} - \dfrac{23}{38}\right)$.	10
2. Find the square root of $76\frac{14}{17}$ to four decimal places.	10
3. Extract the cube root of $4{\cdot}23\dot{4}$ to three decimal places.	10
4. Reduce $(27{\cdot}3\ddot{4}\dot{5} + 6{\cdot}4\ddot{2} - 17{\cdot}\dot{4}3\dot{5}) \times 2{\cdot}3\ddot{6}$.	12
5. A watch set accurately at 12 o'clock indicates 10 minutes to 5 at 5 o'clock; what is the exact time when the watch indicates 5 o'clock?	13
6. A piece of work can be accomplished by A and B in 4 days, by A and C in 6 days, by B and C in 8 days. Find in what time it would be accomplished by all working together.	15
7. Find the value of the following expression with the aid of logarithms— $\dfrac{(\cdot002)^2 \times \sqrt{23\sqrt{2}}}{54{\cdot}8 \times \cdot257}$.	10
8. Find the log. tang. of the angle whose log. cosec. is 10.2438765.	10
9. Find the numerical value of $\sin A \cos B \cot C$ when $A = 91^\circ\ 13'\ 15''$ $B = 18^\circ\ 17'\ 17''{\cdot}8$ $C = 102^\circ\ 34'\ 39''.\ 45$	10

SESSIONAL PAPER No. 25a

ALGEBRA.

(Time 3 hours.)

Marks.

1. Simplify the following expressions:

$$\left(\frac{a}{a+b}+\frac{b}{a-b}\right)\div\left(\frac{a}{a-b}-\frac{b}{a+b}\right)$$

$$\frac{\frac{1}{a}+\frac{1}{b+c}}{\frac{1}{a}-\frac{1}{b+c}}\left(1+\frac{b^2+c^2-a^2}{2bc}\right)$$

$$\frac{x+\sqrt{x^2-1}}{x-\sqrt{x^2-1}}+\frac{x-\sqrt{x^2-1}}{x+\sqrt{x^2-1}} \qquad 15$$

2. Prove that

$$(a-b)^3+(b-c)^3+(c-a)^3=3(a-b)(b-c)(c-a) \qquad 10$$

3. Find the G.C.M. of

$$a^3x^3-a^2bx^3y+ab^2xy-b^3y^3 \text{ and}$$
$$2a^2bx^2y-ab^2xy^2-b^3y^3 \qquad 10$$

4. Solve the equations

(*a*) $\frac{1}{x-2}-\frac{1}{x-4}=\frac{1}{x-6}-\frac{1}{x-8}$

(*b*) $\frac{ax^2+bx+c}{px^2+qx+r}=\frac{ax+b}{px+q}$ 25

(*c*) $13x+11y=4a;\ 12x-6y=a$

(*d*) $x+y+z=a+b+c$
$x+a=y+b=z+c$

(*e*) $xyz=a(yz-zx-xy)=b(zx-xy-yz)=c(xy-yz-zx)$

5. Two persons *A* and *B* could finish a work in *m* days; they work together *n* days when *A* is called off and *B* finishes it in *p* days. In what time could each do it? 20

6. The difference of the squares of two consecutive numbers is 21. Find the numbers. 10

7. The hour and minute hands of a watch are at right angles to one another between two and three o'clock; what is the precise time? 10

PLANE GEOMETRY.

(*Time, 3 hours.*)

	Marks.
1. If one side of a triangle be greater than another, then the angle opposite the greater side shall be greater than the angle opposite the less.	12
2. If perpendiculars be drawn to two intersecting straight lines from any point between them, show that the bisector of the angle between the perpendiculars is parallel to the bisector of the angle between the given straight lines.	12
3. Describe a parallelogram that shall be equal to a given triangle and have one of its angles equal to a given angle.	12
4. In a triangle any two sides are together greater than twice the mediam which bisects the remaining side.	12
5. If a straight line is divided equally and also unequally, the sum of the squares on the two unequal parts is twice the sum of the squares on half the line and on the line between the points of section.	14
6. The square on any straight line drawn from the vertex of an isosceles triangle to the base is less than the square on one of the equal sides by the rectangle contained by the segments of the base.	14
7. Through a given point within a circle draw the least possible chord. Prove.	12
8. Draw a tangent to a circle through a given external point.	12

PLANE GEOMETRY.

(*Time, 3 hours.*)

	Marks.
9. Inscribe a circle in a given triangle.	12
10. Describe an isosceles triangle having each of the angles at the base double the third angle.	12
11. Show that the bisectors of the angles of any regular polygon are concurrent.	12
12. With three given points as centres describe three circles touching one another two by two.	12
13. If the vertical angle of a triangle be bisected by a straight line which cuts the base, the segments of the base are to one another in the same ratio as the remaining sides of the triangle.	12
14. In a right angle triangle, if a perpendicular be drawn from the right angle to the hypotenuse, the triangles on each side of it are similar to the whole triangle and to one another.	12
15. If two straight lines cut one another within a circle, the rectangle contained by the segments of one of them is equal to the rectangle contained by the segments of the other.	14
16. Construct a triangle whose angles and area are given.	14

SESSIONAL PAPER No. 25a

PLANE TRIGONOMETRY.

(Time, 3 hours)

	Marks.
1. Write down the cosine of an angle in terms of its tangent and also in terms of its cosecant.	12
2. In a right angled triangle ABC, C being the right angle, find c in terms of A and b, and also in terms of B and b ; also A in terms of a and b, and b and c.	12
3. The angle of elevation of the top of a flag pole 120 feet distant is 28° 35′, and the vertical angle between the top and bottom is 34° 42′ ; find the height of the pole.	12
4. In any plane triangle prove the relation $$a^2 = b^2 + c^2 - 2\ b\ c \cos.\ A.$$ From it derive an equation for determining A suitable for log-arithmic computation.	12
5. The angles A and B in a triangle are respectively 31° 40′ and 48° 20′ ; the perpendicular from C to the opposite side is 150 feet in length ; solve the triangle.	14
6. The bearings and lengths of two lines running from a point are N. 70° E. 20 chs., and S. 50° E. 30 chs., respectively ; find the length and bearing of the line joining their extremities.	12
7. A pole 20 feet high subtends an angle of 12° 30′ at a point that is 6 feet higher than the foot of the pole ; find horizontal distance from the point to the pole.	14
8. From two stations A and B on shore the bearings of a ship at sea, observed simutaneously, are S. 27° E. and S. 35° W., the bearing and length of AB are S. 75° E. 870 yards ; find the distance of the ship from A.	12

SPERICAL TRIGONOMETRY.

(Time, 3 hours.)

	Marks.
1. Show that the three sides of a spherical triangle are together less than four right angles.	14
2. What is a polar triangle ? State and prove two of its properties.	14
3. State Napier's rules of circular parts, and apply them to derive formulae for the solution of a right angled triangle in which an angle and the hypotenuse are given.	14
4. In a right angled spherical triangle C being the right angle, given $A = 147°\ 02'\ 54''$ and $b = 137°\ 03'\ 48''$; find the remaining parts.	15
5. Two planes intersect at right angles, and through a point on their line of intersection lines are drawn, one in each plane, making angles of 30° and 50° respectively, with the line of intersection ; find the angle between the two lines.	14

	Marks.
6. Prove the formula $\cos a = \cos b \cos c + \sin b \sin c \cos A$ and from it derive the formula $\sin^2 \frac{1}{2} A = \frac{\sin (s - b) (\sin s - c)}{\sin b \sin c}$	14
7. In a spherical triangle given $A = 33^\circ 15'$, $B = 31^\circ 34, 38''$, $b = 70^\circ 10' 30''$; solve the triangle.	15

MENSURATION.

(Time 3 hours.)

	Marks.
1. The perimeter of a triangle is 150 feet and the radius of the inscribed circle 12 feet; find its area.	12
2. Find the circumference of a circle whose area is one acre.	12
3. Find the area of a segment of a circle, the length of the chord being 150 feet and that of the middle ordinate 40 feet.	20
4. Find the area of the triangle the length of one of whose sides is 12 chains and the two adjacent angles 42° and 36°, respectively.	12
5. Find the area in square miles of the portion of the earth's surface north of the paralel of latitude 70°, regarding the earth as a sphere whose radius is 3956 miles.	20
6. Find the area of a rectangular field whose diagonal is 8·40 chains, the inclination of the diagonal to the longer side being 35° 25′.	12
7. Find the area of the curved surface of a cone, the radius of whose base is 3 feet and whose altitude is 4 feet.	12

PRELIMINARY EXAMINATION. (LIMITED.)

X

FIRST PAPER.

(Time 3 hours).

	Marks.
1. Write a composition of not less than 200 words on— The winter climate of Canada.	
2. Prove the rule for converting a recurring decimal to a vulgar fraction.	8
3. What is the present value of an anuity of $100 payable each year for the next twenty years, interest computed at 4 per cent.	9

	Marks.
4. Solve the equation $(2\frac{1}{2})\ \underset{\sim}{x} + (6\frac{1}{4}) - \underset{\sim}{x}1 = 54\frac{1}{1}\frac{1}{6}$.	9
5. Write down the fourth term of $(a-3b)^{12}$	9
6. Which of the following statements is more nearly correct ? $\frac{10}{9 \cdot 009} = 1 \cdot 11$ or $\frac{10}{1 \cdot 11} = 9 \cdot 009$.	9
7. Solve by a geometrical construction the quadratic equation $x^2 - 4x + 3 = 0$.	9
8, Find the locus of a point whose distances from two given points are in a constant ratio.	9
9. Prove geometrically $c^2 = a^2 + b^2 - 2ab\ cosC$.	9
10. To divide a given straight line in extreme and mean ratio.	9

SECOND PAPER.

(Time, 3 hours.)

	Marks
11. The locus of a point from which tangents drawn to two circles are equal is a straight line.	12
12. Prove that $\tan 2\theta = \frac{2 \tan \theta}{1 - \tan^2 \theta}$. Assuming that the tangent of an arc of $11\frac{1}{4}^\circ$ is greater than the arc, prove that the ratio of the circumference to the diameter of a circle is less than $3 \cdot 2$.	25
13. In a plane triangle having given $A = 50^\circ$, $b = 119$ chains, $a = 97$ chains, find the other parts, and the area of the triangle.	13
14. If the sides of a triangle be 3, 4 and 5, find the radii of the three circles which can be drawn touching the sides.	13
15. State the rules for solving a spherical right angled triangle by the use of Napiers Circular Parts.	12
16. Give formulæ for volume and surface of a sphere, cylinder, cone and frustum of a pyramid.	12
17. In a spherical triangle $A = 37^\circ$, $B = 85^\circ$, $C = 74^\circ$. Find one of the sides.	13

PRELIMINARY EXAMINATION (LIMITED).

XI.

FIRST PAPER.

(Time, 3 hours.)

	Marks.
1. Write a composition of not less than 200 words on :—Canadian Industries.	20
2. A man walks a certain distance and rides back in 3h. 45m. He could ride both ways in $2\frac{1}{2}$ hours. How long would it take him to walk both ways ?	9
3. A person invests \$9,450 in $5\frac{1}{2}$ per cent stock so as to receive an income of \$787.50 —What was the price of the stock ?	9
4. Solve $x^2 - 7x + \sqrt{x^2 - 7x + 18} = 24$	9
5. Find that number whose square added to its cube is nine times the next higher number.	8
6. Prove geometrically $(a+b)^2 + (a-b)^2 = 2(a^2 + b^2)$.	9
7. Prove that the angle made by a chord, drawn in a circle, with the tangent at its extremity is equal to the angle in the opposite segment.	9
8. Describe a circle to touch a given circle, have its centre in a given straight line, and pass through a given point in that line.	9
9. Extract the seventh root of ·01436 and multiply result by $(1{\cdot}27)\ 4\frac{3}{4}$.	9
10. Solve the equation $8^{-3x} = 12^{4-2x}$ having given log 2 = ·30103 ; log 3 = ·47712.	9

SECOND PAPER.

(Time, 3 hours.)

	Marks.
11. Find the area of the sector of a circle whose radius is 200 feet, the arc of the sector being 160 feet in length.	10
12. The diameter of the base of a cone is 10 inches ; find its altitude if the area of its curved surface equals that of a sphere whose diameter is also 10 inches ; also if its volume equals that of the sphere.	10
13. Derive the formula $a^2 = b^2 + c^2 - 2bc \cos A$ and from it the formula $\sin^2 \frac{1}{2}A = \frac{(s-b)(s-c)}{bc}$.	10

	Marks.
14. A base line AB, 3.40 chains in length, is measured along the bank of a river, and also the angles ABC and BAC, C being a point on the other side; find the distance AC.	10
15. The sides of a quadrilateral are: $AB = 11.20$ chs., $BC = 13.60$ chs., $CD = 9.75$ chs., and $DA = 12.35$ chs.; the angle $ABC = 75^\circ\ 40'$; fine its area.	10
16. Find the area in square miles of the portion of the earth's surface between the parallels of latitude 40° and 60° **N.**, and the meridians 60° and 80° W., regarding the earth as a sphere whose radius is 3,956 miles.	10
17. State Napier's rules of circular parts and apply them to derive equations for solving a triangle in which the two angles are given.	10
18. Prove the formula $\cos a = \cos b \cos c + \sin b \sin c \cos A$ and from it derive the formulæ $\frac{\sin A}{\sin a} = \frac{\sin B}{\sin b} = \frac{\sin C}{\sin c}$	10
19. In a spherical triangle, given $a = 127^\circ\ 17'\ 51''$, $b = 113^\circ\ 49'\ 31''$, $C = 109^\circ\ 10'\ 20''$, solve the triangle.	10
20. The angle of elevation of the top of a flag-pole 50 feet in height, observed at a certain point, is 18° 25′, and the angle of depression of its foot is 7° 32′; find the horizontal distance to the pole, and the height of the point of observation above its foot.	10

FULL EXAMINATION FOR ADMISSION AS SURVEYOR.

XXXI.

ALGEBRA.

(Time, 3 hours.)

	Marks.
1. Find the H.C.F. of $3x^5 - 10x^3 + 15x + 8$ and $x^5 - 2x^4 - 6x^3 + 4x^2 + 13x + 6$ and the L.C.M. of $a^2(b-x)^5c^7d$ and $a^3(b-x)^2c^4e$.	11
2. Simplify $\frac{x+\sqrt{x^2-1}}{x-\sqrt{x^2-1}} + \frac{x-\sqrt{x^2-1}}{x+\sqrt{x^2-1}}$.	11
3. Solve $x+y+z=a$, $2x+3y+4z=b$, $5x+6y+7z=c$.	11
4. The product of four consecutive numbers is 24024; find them.	11
5. Reduce to a common radical index $\sqrt[4]{7}, \sqrt[5]{5}, \sqrt[10]{120}$.	11
6. Solve $3^{x+1} + 9^x = 108$.	12
7. The difference of the squares of two numbers is 120, and their product 221. Find the numbers.	11
8. Solve $x^2 - 7x + \sqrt{x^2 - 7x + 18} = 24$	11
9. Solve $\frac{1}{x-a} + \frac{1}{x-b} + \frac{1}{x-c} = 0$. $25a - 21\frac{1}{2}$	11

PLANE GEOMETRY.

(Time 3 hours.)

	Marks.
1. Prove geometrically $(a+b)^2 + (a-b)^2=2(a^2+b^2)$	15
2. Prove that the interior angles of a triangle are equal to two right angles, and give a general expression for the sum of the angles of any rectilineal figure.	15
3. Through three given points only one circle can be drawn.	20
4. Describe a circle within a given triangle.	20
5. Determine the locus of a point whose distance from any point is double its distance from another given point.	20
6. Construct a triangle having each of the angles at the base double the angle at the vertex.	20
7. Express the distance between the centres of the inscribed and circumscribed circles of a triangle in terms of the radii.	20
8. Find a mean proportional between two straight lines.	20

SOLID GEOMETRY

(Time, 3 hours.)

	Marks.
1. Define solid, inclination of a plane to a plane, pyramid, frustum of a cone, tetrahedron, parallelopiped, and icosahedron.	10
2. If a solid angle be contained by three plane angles, any two of these are greater than the third.	10
3. Any three straight lines which meet one another, not in the same point, are in one plane.	11
4. The plane angles which contain any solid angle are together less than four right angles.	11
5. A metallic right cone, base a inches radius, height b inches, is converted into a sphere. What is the diameter of the latter ?	11
6. What portion of the surface of the earth is contained between the parallel 30° and 60° north latitude ?	11
7. What is the weight of a metallic hollow sphere, outside diameter 8 inches, thickness 1 inch, specific gravity of metal 6·5 ?	11

SPHERICAL TRIGONOMETRY.

(Time, 3 hours.)

	Marks.
1. Show that $\cos a = \cos b \cos c + \sin b \sin c \cos A$ and $\cos B - \cos A = \frac{\sin (a - b)}{\sin c}(1 + \cos C)$.	25
2. Deduce one of Napier's analogies.	25
3. Show that $\sin^2 \frac{1}{2} A = \frac{\sin (s - b) \sin (s - c)}{\sin b \sin c}$.	25
4. In a spherical right triangle $A = 100°$ and $a = 112°$; solve the triangle.	25
5. In a spherical triangle $A = 95° 38'$, $C = 97° 26'$, $b = 64° 24'$; solve the triangle.	25

AREAS.

(Time, 3 hours.)

	Marks.
1. Compute the area by the method of latitudes and departures, first "balancing" the survey	

	c
S. 69° 15′ E.	7·06
N. 37° 15′ E.	5·93
N. 39° 30′ W.	6·00
S. 57° 45′ W.	4·65
S. 30° 00′ W.	4·98

40

2. Express the conditions necessary for a closed survey by two equations. (a) And from them show what missing data in a survey can be supplied. (b) How does the supplying of missing data in a survey affect "balancing" the survey?	20
3. If in the above survey the chain was one link too long, what is the correct area?	20
4. A quadrilateral measures 15, 16, 17 and 18 chains, and one of the diagonals 22 chains; find the area.	20

AREAS.

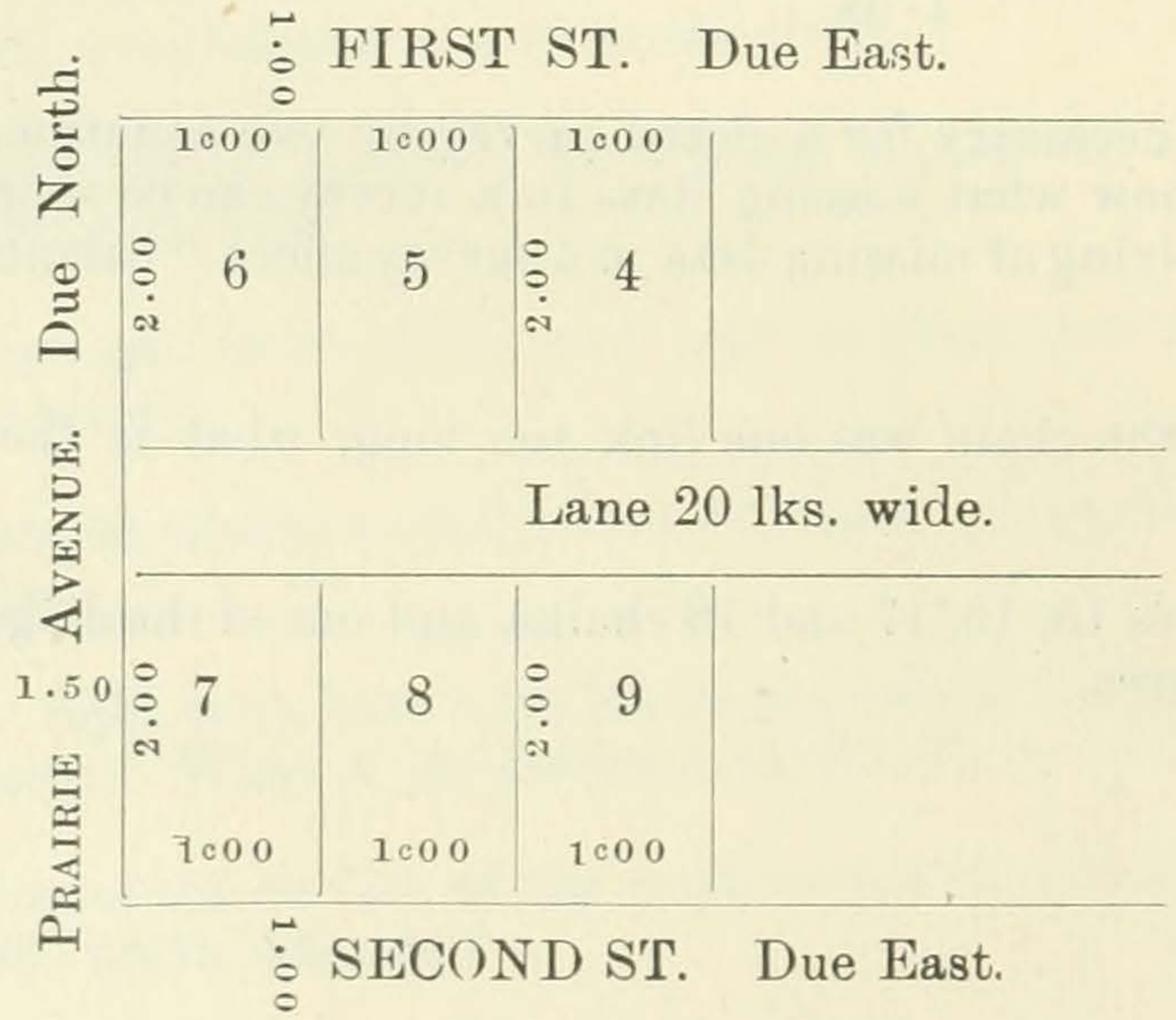
(Time, 3 hours.)

	Marks.
5. In a triangle $AB = 10^{c}{\cdot}24$, $BC = 12^{c}{\cdot}64$ and $CA = 13^{c}{\cdot}04$. The azimuth of $AB = 0°\ 0'$. What is the azimuth and length of the line starting at 2 chs. from A on AB which bisects the triangle?	20
6. What is the length of the shortest line that divides the above triangle in the proportion 2 : 3?	20
7. In a kite-shaped half mile track the tangents diverge at an angle of 60°. The track is 33 ft. wide, the half mile 3 ft. from the inner side of track; what is the area of the track?	20
8. What is the length and azimuth of the line that will bisect T. 4 R. 6 W. of 2nd I. M., the dividing line beginning at the S. E. corner of sec. 1?	20
9. In a triangular field $AB = 48^{c}{\cdot}00$, $BC = 42{\cdot}00$, $CA = 30{\cdot}00$; required to part off 31·175 ac. by a straight line passing through a point P; PD, drawn parallel to AC, being $6^{c}{\cdot}00$, and D on BC distant $18{\cdot}^{c}00$ from C. What is the length of the dividing line?	20

DESCRIPTIONS.

(Time, 3 hours.)

	No. of Marks.
1. In a registered and certified plan the measurements and bearings of all lines are given; each lot is numbered and shown as being one chain wide and two long. Make a description of one of the lots for a deed of bargain and sale.	20
2. The following is a part of a registered and certified plan; the owner of Lot No. 7 sells 40 feet frontage on Second Street, and adjoining Prairie Avenue, and this width to extend to the lane.	20



Make a description by metes and bounds of the part sold.

	Marks.
3. The owner of the S. E. ¼ Sec. 4, Tp. 5, R. 4 W. of 2nd I. M., sells the southerly 100 acres thereof, the boundaries to be the southern boundary of the ¼ Sec., the eastern and western ones, and a line parallel to the southern boundary. Give description of the part sold, by metes and bounds.	20
4. Through Sec. 21, Tp. 8, R. 6 W. of 2nd I. M., flows a stream westward. The owner of the section sells the eastern half (two ¼ sections), but reserves the privilege of "swelling" the water and of access along the banks of the stream for the purposes of repair of banks in that half of section 21. Make description of part sold for a deed.	20
5. Draw up a settler's statutory declaration of occupation.	10
6. Draw up an assumed evidence, and, which is of value, of a witness regarding the lost post of a section corner, which it is desired to re-establish.	10

ASTRONOMY.

(Time, 3 haurs.)

	Marks.
1. Define declination, right ascension; celestial latitude and longitude; solar, mean and sidereal time; parallax and azimuth.	12
2. Explain fully the equation of time and its variations. A graphical repre sentation may be given.	12
3. What is the true altitude of Polaris at transit on the 3rd base line, range 16 W. of 2nd I. M., on June 21, 1904?	12
4. What is the azimuth of Polaris at eastern elongation for place and date of question 3?	12
5. What is the standard time (referred to meridian 105°) of elongation of Polaris in question 4?	13
6. What is the standard time of sunset for place and date of question 3 Refraction and semi-diameter to be considered.	13
7. At place and date of question 3, what is the altitude of a star, declination 35° 16′, when crossing the prime vertical?	13
8. What is the local mean time of the transit of Polaris, upper culmination at place and date of question 3?	13

ASTRONOMY.

(Times 3 hours.)

9. On May 31, 1904, on the third base line, S. W. corner of sec. 3, range 16, W. of 2nd I. M., the observed altitude of the sun's upper limb was 29° 47′ in the forenoon, a watch showing $7^h\ 42^m$; what was the watch correction, and what was the time of observation, standard time? — 20

10. In question 9 the horizontal circle reading on the sun's centre was 317° 23′, and on the reference object 18° 32′; what was the azimuth of the latter? — 20

11. At the place and date in question 9, when the hour angle of Polaris was $4^h\ 24^m$, what was its azimuth? — 20

12. At noon July 1, 1904, at the 2nd I. M., a sidereal chronometer is $1^m\ 34^s$ fast on local sidereal time. It has a daily losing rate of $1^s{\cdot}4$. How much is the chronometer fast on local mean time of meridian between ranges 19 and 20 W. of 2nd I. M. on July 20, 4 P.M.? — 20

13. The apparent altitude at upper transit of a star was 48° 15′. and at lower transit the apparent altitude 43° 40′. What was the latitude of the place? — 20

FULL EXAMINATION FOR ADMISSION AS SURVEYOR.

ALGEBRA.

XXXI.

(Time, 3 hours.)

Marks.

1. Find the H. C. F. of $6x^5 - 4x^4 - 11x^3 - 3x^2 - 3x - 1$ and $4x^4 + 2x^3 - 18x^2 + 3x - 5$ and the L. C. M. of $x^2 - 4a^2\ (x + 2a)^3$ and $(x - 2a)^3$ — 11

2. Solve $\frac{6x+1}{15} - \frac{2x-4}{7x-16} = \frac{2x-1}{5}$ — 11

3. At what time between one and two o'clock is the minute hand of a clock exactly one minute in advance of the hour hand? — 11

4. Solve $x + y + z = a + b + c$; $bx + cy + az = cx + ay + bz = a^2 + b^2 + c^2$ — 11

5. There is a number consisting of two digits; the number is equal to seven times the sum of its digits, and if 27 be subtracted from the number the digits interchange their places; find the number. — 11

6. Extract the cube root of $21\sqrt{6} - 23\sqrt{5}$ — 11

7. Solve $\frac{x+3}{x \times 2} + \frac{x-3}{x-2} = \frac{2x-3}{x-1}$; $3^{x+1} + 9x = 810$

$2\sqrt{x} + \frac{2}{\sqrt{x}} = 5$; $\frac{a}{a+x} + \frac{b}{b+y} = 1$; and $x + y = a + b$ — 12

8. A line of given length is bisected and produced; find the length of the produced part so that the rectangle contained by half the line and the line made up of the half and the produced part may be equal to the square on the produced part. — 11

9, The product of two numbers is 750, and the quotient when one is divided by the other is $3\frac{1}{3}$; find the numbers. — 11

PLANE GEOMETRY.

(Time, 3 hours.)

	Marks.
1. Prove geometrically $(b + a)(b - a) = b^2 - a^2$.	19
2. Describe a square that shall be equal to a given rectilinear figure.	18
3. If a straight line be divided internally in medial section, and from the greater segment a part be taken equal to the less, show that the greater segment is also divided in medial section.	19
4. Prove that the sum of the squares on the sides of a parallelogram is equal to the sum of the squares on the diagonals.	19
5. Prove that the angle in a semicircle is a right angle, the angle in a segment greater than a semicircle is less than a right angle, and the angle in a segment less than a semicircle is greater than a right angle.	19
6. Describe an isosceles triangle having each of the angles at the base double the third angle.	19
7. In a triangle ABC the inscribed circle touches BC at D, show that the circles inscribed in the triangles ABD and ACD touch one another.	19
8. Prove that similar triangles are to one another in the duplicate ratio of their homologous sides.	18

SOLID GEOMETRY.

(Time, 3 hours.)

	Marks.
1. Show that if two straight lines are parallel and one of them perpendicular to a plane, the other is also perpendicular to the plane.	10
2. Give a geometrical construction for drawing a straight line equally inclined to three straight lines which meet in a point but are not in the same plane.	11
3. Find a point in a given straight line equally distant from two points in space.	11
4. Of the three plane angles that form a trihedral angle, any two are together greater than the third.	10
5. Show that the sum of the plane angles that form a solid angle is less than four right angles.	11
6. Prove that two triangular pyramids whose bases and altitudes are equal, are equal in volume.	11
7. Find by a geometrical construction the centre of the sphere which passes through the angular points of a triangular pyramid.	11

SPHERICAL TRIGONOMETRY.

(Time, 3 hours.)

Marks.

1. Derive the equations: $\sin a \cos B = \sin c \cos b - \cos c \sin b \cos A$; $\text{Sin } A - \cot B = \sin c \cot b - \cos cos A$; $\cos^2 \frac{1}{2} A = \frac{\sin s \sin (s-a)}{\sin b \sin c}$ — 18

2. State Napier's rules, and apply them to the solution of a triangle in which the two sides containing the right angle are given. — 17

3. In a right angled triangle, given: $a = 58° 20'$, $b = 132° 40'$, $C = 90°$; solve the triangle. — 18

4. Given two sides and the included angle of a triangle, show how the triangle may be solved by means of a perpendicular. — 18

5. Find the distance between two points on the earth's surface whose latitudes and longitudes are: 51° 20′ N. and 10° W., and 31° 10′ N. and 64° 40′ W., respectively, the radius of the earth being 3956 miles. — 18

6. Through a point on the line of intersection of two planes two right lines are drawn, one in each plane, one making an angle of 50° and the other 65° with the line of intersection; the angle between the two lines is 70°; find the angle between the two planes. — 18

7. In a spherical triangle on the earth's surface $A = 60°$, $B = 75°$, and $c = 22°$; find angle C and the area of the triangle in square miles. — 18

AREAS.

(Time, 3 hours.)

Marks.

1. The following are the notes of the survey of a quadrilateral piece of land:

Stations	Bearings.	Distances.
1	N. 43° 20′ E.	13·50 chains.
2	S. 48° 20′ E.	9·80 "
3	S. 22° 40′ W.	14·70 "
4	N. 47° 00′ W.	15·10 "

Find its area by the method of latitudes and departures, first balancing the courses. — 20

2. A piece of land 15 chains in width, with parallel sides, is crossed by the right of way of a railway on a 6° curve (rad. = 955·37 ft.), the tangent to the centre line making an angle of 40° with one of the boundaries at the point of crossing; find the area of the right of way across the piece of land, its width being 1 chain. — 20

3. The sides of a triangular piece of land are: a = 12 chains, b = 10 chains, c = 15 chains; find the position of the line drawn through the middle point of the perpendicular to c from the opposite angle and bisecting the triangle, the line cutting the sides b and c. — 20

4. Divide the triangle of question 3 in the ratio 1 : 3 by the shortest possible line. — 20

5. A line drawn from one extremity of the diameter of a semi-circle bisects its area; find the angle which it makes with the diameter. — 20

SESSIONAL PAPER No. 25a

AREAS (2nd paper.)

(*Time, 3 hours.*)

Marks.

6. In a closed rectilinear figure what conditions must be fulfilled by the latitudes and departures? Show how these conditions are used to supply omissions in the survey of such a figure. Show this application to the case in which two bearings were omitted. 20

7. The following are the notes of a survey :

Stations.	Bearings.	Distances.	
1	27° 34′	.....	
2	115° 41′	10·43 chains.	
3	196° 53′	.....	
4	285° 17′	12·76 "	20

Supply the lengths of the two omitted courses, the bearings being reckoned from the north in the direction E.S.W.

8. Find the azimuth of the line starting from the S.E. corner of Section 1, Tp. 21, R. 28 W. of 3rd. Meridian and cutting off 160 acres from that section. 20

9. Find also the position of the line starting from the S.W. corner and bisecting the remainder of the section. 20

10. A triangle whose sides are a, b and c is bisected by a line making a given angle with the side c ; find the length of the line and the positions of the points in which it cuts the sides of the triangle. 20

ASTRONOMY.

(*Time, 3 hours.*)

Marks.

1. Explain fully the equation of time and its variations, illustrating by diagrams. 12
2. Deduce the rules for the reduction of mean to sidereal time, and conversely. At a place in latitude 44° 10′ and longitude 76° 30′ W. the standard time on May 12th, 1891 is 9 h. 50 m. P.M. ; find the sidereal time. 13
3. At the same place and date find the standard time when the apparent altitude of the star Canis Minoris is 21° 34′, when west of the meridian. 13
4. At the same place find the standard time of transit of the sun's western limb on June 1st. 1891. 12
5. Find standard time of sunrise at Ottawa on June 1st. 1891. 13
6. Deduce a formula for finding the latitude by an altitude of Polaris. 12
7. Derive a formula for reducing circum-meridian altitudes to the meridian, for determining latitude. 12
8. At a place in latitude 55° 30′ N. and longitude 105° W. find the azimuth of Polaris at western elongation on June 15th 1891. Find also the standard time of elongation. 13

ASTRONOMY (2ND. PAPER.)

(*Time, 3 hours.*)

	Marks.
9. Describe fully the method of observing and reducing an altitude of the sun to find the azimuth of a line.	14
10. Show when the best time is for observing an altitude of the sun for time, latitude and azimuth.	14
11 The altitude of a star on the prime vertical is 32°, and its declination 40° ; find the latitude of the place.	14
12. Find sidereal time of western transit of the star Arcturus across the prime vertical at Ottawa on June 20th, 1891, and its apparent altitude at the time of transit.	14
13. Describe methods of determining longitudeon an exploratory survey.	14
14. At a place in latitude 51° 51′ N. and longitude 7 h. 45 m. W. the bearing of the sun's southerly limb was observed with a compass to be N. 80°·5 E. at 7 h.32 m. 20 s. A. M., watch time, the watch correction being—40 s. on local mean time ; find the variation of the compass, the sun's declination being 6°30′ 04″ N. and the equation of time + 1 m. 39·2 s.	15
15. An observation for time is made on the 4th. base line at the 3rd Initial meridian and the error of the chronometer found to be 17 m. 36·5 s. fast, and a daily losing rate of 3·5 s. Two weeks subsequently on the same base line, after producing it westward, another observation for time is made and the chronometer found to be 23 m. 18·5 s. fast. Give position on section line where the latter observation was made.	15

INDEX

		Page.
Report of Surveyor General		3
Appendix No. 1.	Schedule of Dominion Land Surveyors employed from July 1, 1903, to December 31, 1903	13
Appendix No. 2.	Schedule of Dominion Land Surveyors employed from January 1, 1904, to June 30, 1904	18
Appendix No. 3.	Schedule showing miles surveyed and cost of same	21
Appendix No. 4.	List of Dominion Land Surveyors supplied with standard measures	23
Appendix No. 5.	List of Yukon Surveys confirmed	24
Appendix No. 6.	Miscellaneous Surveys in Yukon	26
Appendix No. 7.	Statement of work executed in the office of the Chief Draughtsman	27
Appendix No. 8.	Statement of work executed in the Survey Records office	27
Appendix No. 9.	" " " Photographic office	28
Appendix No. 10.	" " " Lithographic office	29
Appendix No. 11.	Descriptions of townships surveyed :—	
	East of 1st Meridian—Ranges 8, 9, 10, 11, 12, 13 and 14	32
	West of 1st Meridian—Ranges 1, 3, 9, 10, 11, 22, 24, 25, 30, 32 and 33	38
	West of 2nd Meridian—Ranges 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28 and 29	42
	West of 3rd Meridian—Ranges 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 and 28	92
	West of 4th Meridian—Ranges 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 29 and 30	192
	West of 5th Meridian—Ranges 1, 2, 3, 4, 5, 6, 7, 8, 25 and 26	272
	West of 6th Meridian—Ranges 4, 7, 8, 9, 12, 23, 24, 25, 28, 29 and 30	287
	East of Coast Meridian	289
Appendix No. 12.	Report of P. R. A. Belanger, D.L.S	291
Appendix No. 13.	" J. J. Dalton, D.T.S	294
Appendix No. 14.	" Louis E. Fontaine, D.L.S	297
Appendix No. 15.	" Ernest W. Hubbell, D.L.S	298
Appendix No. 16.	" A. W. Johnson, D.L.S	301
Appendix No. 17.	" G. J. Lonergan, D.L.S	303
Appendix No. 18.	" Jos. E. Ross, D.L.S	305
Appendix No. 19.	" Arthur Saint-Cyr, D.L.S	307
Appendix No. 20.	" J. N. Wallace, D.L.S	309
Appendix No. 21.	Examination papers for Dominion Land Surveyors	312

SUMMARY REPORT

OF THE

GEOLOGICAL SURVEY DEPARTMENT

OF

CANADA

FOR THE CALENDAR YEAR

1904

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
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1905

[No. 26—1905.]

No. 899.

To His Excellency the Right Honourable Sir Albert Henry George, Earl Grey, Viscount Howick, Baron Grey of Howick, a Baronet, G. C. M. G , &c., &c., &c., Governor General of Canada.

MAY IT PLEASE YOUR EXCELLENCY,—

The undersigned has the honour to lay before Your Excellency, in compliance with 3 Vic., Chap. 2, Section 6, the Summary Report of the Operations of the Geological Survey Department for the calendar year ending December 31, 1904.

Respectfully submitted.

FRANK OLIVER,

Minister of the Interior.

TABLE OF CONTENTS

PAGE.

Advantage of Geological Surveys i
Field-work..... iii
Mines Section xi
Coal and other Mineral Fuel..... xii
Nomenclature of Rock Formations..... xviii
Practical character of the Department's Work xxix
Prrovincial Mining Bureaus..... xxxii
Work at Headquarters..... xxxvi

Explorations and Surveys:—

Yukon Territory—
The Kluane Mining District..... 1-18
The Duncan Creek Mining District..... 18-42

British Columbia—
Nicola Coal-basin 42-65
Quilchena Coal-basin..... 65-74
Copper Claims of Aspen Grove..... 74-78
Copper Claims of Aberdeen Camp 78-80
The Lardeau Mining District..... 80-91
Geology of the Western Part of the International Boundary (49th Parallel) 91-100
Natural History of the National Park..... 100-105
Cascade Coal Basin 105-116
Costigan Coal Basin..... 116-120

Franklin—
Government Expedition to Hudson Bay and Northward 122-143

Keewatin—
Headwaters of the Severn river..... 143-152
Upper Parts of Winisk and Attawapiskat rivers..... 153-164

Ontario—
The Little Current and Drowning rivers..... 164-173
West coast of James bay..... 173-179
Geology of the country around Bruce Mines..... 179-190
On Corundum in Ontario and on Surveys near Lake Temagami 190-194
On Surveys between Rabbit and Temagami lakes..... 195-198
Geology of a District from Lake Timiskaming Northward 198-225
Raised shore-lines along the Blue Mountain Escarpment..... 225-228
Minerals of the Ottawa Valley 229-232
Geology of part of the county of Ottawa..... 232-250

Quebec—
Surface Geology of Eastern Quebec..... 250-263
Copper bearing Rocks of the Sherbrooke district..... 263-269
Botany. Chaleur Bay..... 269-271

New Brunswick—

Geology of Charlotte county..... 271-279
Fossil occurrences and certain Economic Minerals..... 279-292

Nova Scotia—

The counties of Cumberland, Hants, Kings and Annapolis.... 293-318
Gold Fields of Nova Scotia..... 319-322

Meteorites—

On the Meteorite which fell near the Village of Sherburne, Ontario, 1904..... 332-336
Chemistry and Mineralogy..... 337-349
Mapping and Engraving..... 349-354
Palæontology and Zoology..... 355-362
Vertebrate Palæontology..... 362-368
Appendix I. Assays of Ores referred to in Mr. Ingall's report.... 385
Appendix II. Notes on Fossil remains collected by Mr. Fletcher.. 385-387
Appendix III. Description of a species of Bythotrephis..... 388
Appendix IV. Determination of fossil plants from British Columbia and Northwest Territories..... 389-392

SUMMARY REPORT

OF THE

GEOLOGICAL SURVEY OF CANADA

FOR THE CALENDAR YEAR 1904.

The Honourable FRANK OLIVER, M.P.,
Minister of the Interior.

SIR,—In accordance with the requirements of the Geological Survey Act, I have the honour to lay before you the following Summary Report on the administration of the Department for the calendar year 1904. This report, like those of former years, describes the business of the Department and the scientific work which has been accomplished during the year, both in the field and at headquarters. Report submitted.

The field-work extended to all parts of the country from the Pacific to the Atlantic and from the International Boundary northward into the arctic regions. It will be seen that it was nearly all of a thoroughly practical character, intended to promote the discovery and development of the mineral wealth of the Dominion. In connection with the geological work, a large amount of necessary topographical surveying was done at the same time, which is of much value in elucidating the geography of Canada. Field-work.

The advantages of showing on our new map-sheets, year by year, both the geography and the geology of large areas which had previously been almost blank spaces on the general map of the country, are manifest to everyone. Equally valuable work is being done by the Survey in the older or inhabited parts of Canada by systematic investigation. A single example may be given in illustration of this. Near Pettigrew, in Cumberland county, Nova Scotia, a seam of coal, ten feet thick, has just been struck, in a bore-hole 2,340 feet deep. This bore-hole, sunk through a covering known to be quite unproductive, was put down on the suggestion of Mr. Hugh Fletcher of this Department, who based his advice on the knowledge obtained by a systematic working out of the structural geology of the district. The actual proving of the truth of Mr. Fletcher's inference shows the value of Advantages of the geological surveys.

exact geological work, and it opens at once a prospect of finding numerous workable coal seams throughout a new area fifty miles in length by thirty in breadth. This initial discovery is alone worth incomparably more than the total cost of all Mr. Fletcher's geological work in Nova Scotia during the past thirty years, and yet it is only one among many practical proofs of the great value of his investigations, which are now represented on a considerable number of published maps showing his topographical and geological surveys of a large portion of the province. Mr. Faribault's work on the gold-fields of Nova Scotia has had equally striking results. Similar benefits have already been derived from the work of the Survey throughout the other provinces and territories.

Home work of the Survey.

The home work of the Survey has also been industriously carried on during the year. It relates to all the processes required for the production of maps from our original surveys, and the printing upon them of the geological colours and signs; to chemical analyses; the assaying of metallic ores; the collection and compilation of information as to mining and smelting; palæontology, zoology, taxidermy, botany and forestry; to quarrying stone, etc.; the manufacture of bricks, tiles, pottery, hydraulic cement, etc.; to the production of slate, corundum, asbestus, petroleum, natural gas, etc.; the distribution of our numerous publications; the supplying of representative, properly-named collections of minerals to educational institutions; to the preparation of reports and other books in reference to all branches of the work of the Department, the editing and printing of these, the business of the accountant's department, a very extensive correspondence on a great variety of technical and other subjects, and the necessary attention to large numbers of visitors seeking information as to geology, mining and other subjects.

Publications.

For some years past, the publications issued by this Department have been so numerous as to require the services of an editor who could devote his entire time to their scrutiny. The United States Geological Survey has long since recognized the necessity of competent editing, and now employs, in addition to a chief editor, two sub-editors and four assistants. The difficulty regarding our own need has been to secure a competent man, but we have now been fortunate in obtaining the services of Mr. Frank Nicolas, a gentleman thoroughly acquainted with this class of work, and one who, from the nature of his mining and literary experiences, is eminently fitted for the post.

Advantages of combined surveys.

In the older civilized countries which are thickly populated, such as Great Britain and France, detailed topographical surveys were absolutely necessary for a variety of purposes, and these, having been made in advance of the geological surveys, were available as a basis for the latter, but in a new and sparsely inhabited country like Canada, the greater part of which is not yet even thoroughly explored, it is impossible to proceed with our field-work without making more or less complete topographical surveys at the same time. Persons who overlook this radical difference in the different countries may write or talk plausibly of a supposed necessity for making separate and independent topographical surveys in the wild parts of Canada, before attempting the geological work. But to do this would double the cost as to both the money and the time required. The advocacy of such a method exhibits a want of knowledge and experience in regard to this matter. Topographical and land surveys on which a preliminary geological map may be based, have been made in the southern parts of the provinces of Quebec and Ontario, and in a narrow strip of territory adjoining the International Boundary line between British Columbia and the State of Washington, but these are exceptional cases in the general problem as it affects the whole Dominion.

Map making.

In our map making we continue to pursue the same system which has been followed for the last four years and which has been found to be the best suited to our conditions. The plotting of the original surveys is done by the field geologists and their assistants, who performed the work and understand it best. The sheets are then accurately compiled, reduced and prepared for the engraver by the regular draughtsmen, under the supervision of the geographer and chief draughtsman of the Department. The engraving and printing are done by contract through the Government stationery office. Any desired number of colours to represent the geological formations is obtained by means of the three-colour system, with a sufficient variety of rulings and cross-rulings.

FIELD-WORK.

In performing the field-work of the year, besides the members of the staff itself, several qualified outside men were employed in the same manner as during the previous seasons, and their reports are given with the others in the present volume. The total number of parties engaged in this work in 1904 was twenty-eight, but in some cases these were divided into two sections which worked separately

during most of the season, thus virtually increasing the number actually in operation. The field-work had all been carefully planned, and the whole of it was successfully performed. In the aggregate, it will add greatly to our knowledge, not only of the geology, but also of the geography of the country. The following sketch gives a brief summary of these operations in the respective fields, the order of its arrangement being, as in previous reports, from north-west to south-east.

R. G. McConnell. Mr. R. G. McConnell, assisted by Mr. F. H. Maclaren, was engaged in the new gold-field of the Kluane district, westward of Whitehorse, in the Yukon territory. It embraces Alsek river, Kluane lake and the north-eastern slope of the St. Elias range. The copper deposits of the Whitehorse district were likewise further examined. Much topographical surveying in other parts of the region was accomplished by Mr. Maclaren.

Joseph Keele. Mr. Joseph Keele investigated the recent discoveries of gold on the Stewart river and several of its branches, including Duncan creek and vicinity. His labours embraced the examination of alluvial mining along several creeks.

Dr. R. W. Ells. Dr. R. W. Ells, assisted by Mr. R. A. A. Johnston of this Survey, was occupied in the Nicola valley, British Columbia, working out the geological structure of that region, with special reference to the occurrences of coal and the ores of iron and copper.

Prof. R. W. Brock. Prof. R. W. Brock, assisted by Mr. W. H. Boyd, as topographer, continued to work out the geology of the Lardeau mining district in British Columbia. He was also engaged for a time in the Rossland mining district. Owing to the prevalence of dense smoke during a considerable part of the summer, much less surveying was accomplished than usual. Mr. Boyd has nearly completed a map showing the work done in this district during the last two years.

Dr. R. A. Daly. Dr. R. A. Daly was again engaged on the geology of the ten-mile belt along the Canadian side of the International Boundary line in British Columbia.

Prof. John Macoun. Prof. John Macoun worked in the National Park, both as botanist and zoologist. His investigations were carried on on both sides of the Rocky mountains, and occupied his time during the whole summer and autumn. They will enable him to give a full report on the botany and zoology of the park, a report that should render it much more interesting as a summer resort.

Lawrenee Lambe.

Mr. Lawrence Lambe, assisted by Mr. J. S. DeLury, was engaged in making a collection of the fossil remains of the large extinct vertebrate animals to be found in the Tertiary formations of the Cypress hills, and which, from their great geological interest, are now attracting much attention. Mr. Lambe brought home an extensive collection, embracing some fine specimens of the remains of extinct mammals.

D. B. Dowling

Mr. D. B. Dowling, assisted by Messrs. George S. Malloch and F. Bell, continued the examinations which he began last year in the coal-fields of the Rocky Mountain region adjacent to the line of the Canadian Pacific railway, where he has made important discoveries and has worked out the geological structure of the region. This is of the greatest importance in connection with the discovery, following-up and working of the coal seams.

Charles Camsell.

Mr. Charles Camsell, assisted by Messrs. Gordon Greenshields and W. H. Dawes, made geological (and also the necessary topographical) surveys in Eastern Manitoba and those parts of the country between Lake Winnipeg and the Severn river, and along the upper branches of that stream, which had not been already examined by other members of the staff. Mr. Camsell delimited the eastern extension of the large Huronian area around Red lake which had been discovered and partly explored by myself in 1883 and further surveyed by Mr. Dowling in 1893. He also discovered some additional small areas of Huronian rocks. In returning he connected his surveys with the explorations which had been made to Cat lake in 1886 by my own assistants of that year, Messrs. John McMillan and Alfred Polson Murray, and also with the survey of this lake by Dr. Alfred W. G. Wilson and Mr. Frank Johnston, also of the Geological Survey staff, in 1902.

William McInnes.

Mr. William McInnes followed up his interesting explorations begun the previous year, in the extensive and heretofore almost unknown region of the Winisk river and surrounding country, lying to the south of Hudson bay proper. He surveyed the western branches of this large stream and examined the country lying between its headwaters and Lake St. Joseph on the Albany. Mr. McInnes, in the course of his geological exploration, endeavoured to find indications of economic minerals of various kinds. His work adds materially to our knowledge of the distribution of the rock-formations of the Hudson Bay region. Besides many valuable observations on the various resources of this region, he made an exhaustive collection of its land and fresh water mollusca, which afford a good natural indication of the climate of any

district, and Mr. McInnes' collection is of a favourable character in this respect.

In his report for 1903, M. McInnes mentioned that a black birch grows along the upper part of the Winisk river. This he supposed to be identical with the black birch of more southern latitudes, *Betula lenta*. Last year he brought home specimens of its leaves, fruit, &c. and Professor Macoun found it to be a new species. This adds one more to the large number of trees native to Canada. A black birch found by the writer south of Rupert river in 1896 and mentioned in his report of that year may be identical with this species.

A. P. Low.

Mr. A. P. Low, of the Geological Survey, was given command of the Canadian Government Expedition to our northern waters, which started in the summer of 1903. The appropriation for the expenses of this expedition was made through the Department of Marine and Fisheries, but a portion of the work was for the Customs and Geological Departments. The sealing steamship *Neptune*, which had been employed for the Hudson Bay expedition in 1884, was again chartered from Messrs. Job Bros. of St. Johns, Newfoundland. She was brought to Halifax, and, during July and part of August, was there fitted out by Commander Low; she sailed for the north on August 22, 1903, with a total company of forty-three. She made a good run to Nachvak inlet on the Labrador coast, about a hundred miles south of Cape Chidley, at the entrance to Hudson strait, and thence to Port Burwell, just inside of this cape. She then proceeded north to Cumberland gulf, on the east coast of Baffinland. Returning to Hudson strait, calls were made at Charles island and Cape Wolstenholme. Commander Low then coasted along the eastern side of the so-called Bell island, as far as Seahorse point, and made some geological examinations near the junction of the Archæan with the Silurian rocks of this shore. The *Neptune* was placed in winter quarters in Fullerton inlet at the north-west angle of Hudson bay, alongside an American whaling vessel, the *Era*, which had already taken up her berth in the inlet. The *Neptune*, roofed in, and then banked all round with a wall of snow, was rendered dry and comfortable, and a pleasant winter was passed. During April and May, Mr. Caldwell was sent to sketch the coast and report upon the rocks from Fullerton inlet to and around the great Wager bay. Meantime Mr. King made an instrumental survey of the shores in the vicinity of the *Neptune's* anchorage, and sounded the entrance of the inlet through the ice, 433 holes being made for this purpose. Commander Low went southward and sketched the shore as far as Chesterfield inlet, going inland about forty miles

from Winchester inlet. Later in the spring, he crossed, with two whale-boats, to Southampton island and examined its western coast for forty miles northward, collecting fossils and geological specimens, as well as making notes as to the geology of this great island.

Leaving three members of the Dominion police force at Fullerton inlet, the *Neptune* quitted her winter quarters on the 19th of July, and met, by appointment, the steamer *Erik*, which had been sent to Port Burwell with a supply of coal. This vessel arrived at the *rendez vous* only one hour ahead of the *Neptune*. Mr. Caldwell was left at Port Burwell to make a survey of the eastern shore of Ungava bay, and the *Neptune* proceeded northward, through Baffin bay, as far as Cape Sabine and Beechey island. Commander Low entered Lancaster sound and found it perfectly clear of ice. Had his instructions permitted, he could probably have made the North-west passage. On the return journey, the *Neptune* put into Port Burwell at noon on October 1, meeting the Dominion Government steamer *Arctic*, from Quebec, which arrived an hour and a half later. Halifax was made on the 10th of October and Mr. Low arrived in Ottawa on the 17th, after an absence of fifteen months, including the time spent in fitting out the *Neptune*. During her absence from Halifax, the *Neptune* covered about 10,000 nautical miles. Besides the instrumental surveys of Mr. King and Mr. Caldwell and Commander Low's own explorations from Fullerton to Chesterfield inlet and on Southampton island, track surveys of most of the coasts between Beechey island and Baffinland were made by the first named gentleman. The total length of the various surveys accomplished by the expedition amounted to 2,041 nautical miles.

In addition to a variety of official duties performed by Commander Low, many astronomical observations were made to fix, accurately, points for geographical purposes; much new geological and other information was obtained; numerous rock-specimens and fossils were collected; many fine photographs were taken, illustrating in a striking manner the different localities visited; information was obtained as to the zoology, botany, fisheries and Eskimos and as to a variety of other subjects of interest. The zoological collection includes six specimens of the musk-ox of different ages and both sexes. These are now being mounted by Ward of Rochester and are intended to form a group to be placed in the new Victoria Museum.

W. J. Wilson.

Mr. W. J. Wilson, with Mr. J. J. Collins as assistant, left as early as possible in the season and worked all summer in the country lying northward of Long lake, north of the central part of Lake Superior,

including the head--waters of some large branches of the Albany river. He also made a survey of the Pagwachuan river, which falls into the Kenogami, the principal tributary of the Albany. Mr. Wilson, like all the other field-geologists, paid particular attention to the occurrence of economic minerals in his district, and he extended an area of Huronian rocks in which gold, copper and iron ores may eventually be found.

Owen O Sullivan.

Mr. Owen O'Sullivan, assisted by Mr. William Spreadborough, performed a very arduous, instrumental survey of the whole of the southern and western coasts of James bay, as far north as Cape Henrietta Maria. These coasts, occupying the central part of the map of Canada, are very prominent features in the geography of the Dominion, and yet they had heretofore been quite inaccurately delineated. It was with a view to supplying a conspicuous geographical want, and at the same time to make the requisite observations in regard to geological conditions, that this work was undertaken. Many new facts as to the botany and ornithology of northern Canada were brought to light on these coasts. It was in order to take advantage of this opportunity to investigate such matters that Mr. Spreadborough, the well-known practical botanist and ornithologist, was sent with Mr. O'Sullivan. Besides noting many interesting zoological facts, Mr. Spreadborough found upwards of forty flowering plants that had not previously been known to occur on the shores of Hudson bay. Owing to the extraordinarily flat and muddy character of the tide-swept shores on the south and west sides of James bay, Mr. O'Sullivan's task was a very difficult and unpleasant one, and he is entitled to much credit for having carried it out so expeditiously and successfully.

E. D. Ingall and Theo. Denis.

Mr. E. D. Ingall and M. Theo. Denis continued their work of the past two seasons on the detailed geology of the typical Huronian area to the northward of the Bruce Mines and eastward of Echo lake and Great Lake George. This work is now so far completed as to admit of the publication of the accompanying map showing most of this area. Besides the geological interest connected with this investigation, it is expected to be of service in the future search for copper deposits. During the thirty years from 1845 to 1875 the Bruce, Wellington, Huron and Copper Bay mines were the largest producers in old Canada. In the above period these mines yielded copper to the value of $3,300,000. The details, as to quantities, prices, etc., from year to year, were investigated by myself and published in the Descriptive Catalogue of Canadian Minerals exhibited at the World's Centennial Exhibition at Philadelphia in 1876.

Dr. A. E. Barlow, assisted by Dr. G. A. Young, and Messrs. W. Herridge and Morley Wilson, was instructed to continue work in the Temagami lake region. Dr. A. E. Barlow.

Prof. W. A. Parks, assisted by Mr. H. L. Kerr, was engaged in investigating a part of the country on the western side of Lake Timiskaming, and thence northward to some of the branches of the Blanche river, in connection with the recent discoveries of silver and cobalt in that district. He mapped out the various rock-formations of the region and indicated the zone in which the above metals occur. Prof. W. G. Miller, provincial geologist of Ontario, did similar work in the district adjoining Professor Parks' area on the south, a plan of co-operation having been arranged at the outset. Prof. W. A. Parks.

Mr. A. F. Hunter was employed in the district from Orangeville northward to Thornbury, Ontario, in tracing the interesting high-level shore-lines along the flanks of the Blue mountain escarpment south of Georgian bay. A. F. Hunter.

Mr. C. W. Willimott collected large supplies of minerals for distribution to educational institutions throughout the Dominion, and at the same time he obtained many fine specimens for the new Museum. His work was principally in the province of Quebec, but he also collected at some localities in Ontario. C. W. Willimott.

Professor Ernest Haycock was employed in working out the detailed geology of the upper Laurentian series in the south-western part of the county of Ottawa. This area embraces a variety of ancient crystalline rocks which Professor Haycock has endeavoured to arrange in nine groups, consisting of different kinds of gneiss, crystalline limestone, quartzite, altered greenstone, etc. It is proposed to continue Professor Haycock's labours in this field next summer, and, afterwards, to publish a map of the district on a scale of one mile to the inch, to show the geological structure and the distribution of the different belts, as was done by Sir William Logan on his map of a typical area of similar Upper Laurentian rocks in the county of Argenteuil. Prof. Ernest Haycock.

Mr. Frank Johnston did similar work in an area lying immediately north-east of the last, and also in the county of Ottawa. Some geological work had been done in this county in previous years by members of the staff; among these being Mr. E. D. Ingall, Mr. James White, Dr. R. W. Ells and the late Mr. H. G. Vennor. Frank Johnston.

Dr. Robert Chalmers investigated the surface-geology of the Gaspé peninsula and of the country along the south side of the Lower St. Dr. Rorbert Chalmers.

Lawrence from Gaspé south-westward towards the city of Quebec. Thence he worked northward to Lake St. John and spent some time in the valley of the Saguenay, where many interesting facts were ascertained.

Dr. J. A. Dresser.

Dr. J. A. Dresser coutinued the work of previous years in defining the copper-bearing belts in various parts of the Eastern Townships, including Drummond and Arthabaska. The object in view is to enable prospectors to confine their labours to the productive zones only. Dr. Dresser's work in this connection during the past three years has shown that the copper is confined almost entirely to the igneous rocks of the series, which are often much altered. A discovery of alluvial gold having been reported on lot 1 concession VII of the township of Stoke, in the province of Quebec, Dr. Dresser was requested to investigate the matter. He reported the 'find' to consist of mica in fine scales disseminated through gravel along the bed of a small stream. The gravel seemed to be of glacial origin, assorted by the stream.

Prof. L. W. Bailey.

Prof. L. W. Bailey devoted about one month to defining the boundaries of the rock-formations and ascertaining more accurately their geological horizons in the counties of York and Carleton, New Brunswick. He next inspected the more recent workings of certain economic minerals in that province and he has prepared the accompany ing report on these subjects.

Dr. R. W. Ells.

Dr. R. W. Ells, assisted by Mr. R. A. A. Johnston, devoted the early part of the season to investigating the geology of the greater part of Charlotte county, New Brunswick. The north-eastern portion of the county has still to be finished, and it is proposed to send Mr. Johnston, next summer, to complete this and to continue the work as far as the St. John river. When this has been done, a map will be published on a sufficiently large scale to show the details of the geology of the whole county and this additional area.

Dr. Henry S. Poole.

Dr. Henry S. Poole completed the work necessary to construct a geological map of the district around Lake Ainslie, in Cape Breton, which will be published with his report on Barytes in Canada. In this report the veins of this mineral at Lake Ainslie are particularly described.

Hugh Fletcher.

Mr. Hugh Fletcher, with two assistant geologists, was engaged in in general systematic geological work in Kings, Annapolis and Cumberland counties, Nova Scotia, including practical researches in the coal-fields and iron ore districts of these counties. The actual discovery of

a thick seam of coal, by boring where Mr. Fletcher had indicated, after his geological investigation, within a large area not before known to be productive, has been referred to in a previous page. This is a good example of the immense value of a well conducted geological survey.

E. R. Faribault.

Mr. E. R. Faribault, with two assistant geologists, worked in the more westerly of the gold districts of Nova Scotia. Instrumental surveys were made of these districts similar to those which were completed in previous years, in other gold districts of the province. Mr. Faribault has laid down all the surveyed gold districts separately on a large scale. He is preparing a general sheet comprising a number of these districts, to accompany a Bulletin by himself on the occurrence of gold in Nova Scotia generally, in which many interesting points of economic importance will be brought out.

L. N. Richard.

Mr. L. N. Richard, assisted by Mr. J. J. McGee, was occupied during part of the summer in running lines of accurate survey in Nova Scotia, between the Bay of Fundy and the Atlantic, south of Halifax. This work is described in Mr. Senecal's report.

My own field-work, as a member of the International Committee of Geologists on the crystalline rocks of the Lake Superior region, is referred to in connection with the report of the Committee.

Mines Section.

The report of the Mines Section and the preliminary tabulated statement of the output of the various mineral products of the Dominion, given further on in this volume, show some interesting features. Among the large number of questions received either personally by members of the staff, or through correspondence, in regard to economic minerals, the following, embodying more than fifty kinds, were those more particularly inquired for during the year :—

Albertite,
Anthracite,
Apatite,
Asbestus,
Barytes,
Bauxite,
Blende,
Chromic iron,
Clays,
Coal,
Cobalt,
Copper ores,
Corundum,
Marls,
Mica,
Mineral waters,
Molybdenite,
Monazite,
Nickel,
Ochres,
Ozokerite,
Petroleum,
Pitchblende,
Platinum,
Radium,
Rotten-stone,

Feldspars,
Fire-clay,
Galena,
Gas,
Gold,
Gypsum,
Hematite,
Infusorial earth,
Iron ores in general,
Iron pyrites,
Lignite,
Limestones,
Magnesite,
Magnetite,
Marbles,
Rutile,
Slates,
Soapstone,
Sodalite,
Talc,
Titanite,
Titanium,
Tripolite,
Tungsten,
Uranium,
Vanadinite,
Witherite,
Wolfram,
Zinc ores.

Information was especially sought in regard to clays, limestones and marls suitable for the manufacture of hydraulic cement, and also as to petroleum, natural gas, peat and molybdenite.

Peat.

Owing to the constantly increasing price of fuel and the absence of coal in Ontario and Quebec, the most populous provinces of the Dominion, much interest is being taken in peat. The excellent bulletin on this subject by Dr. Robert Chalmers of this Survey, published in the early part of the year, has been much asked for. The Honourable Senator McMullen, during last session of parliament, called for a Return, giving all information which might be available in regard to fuels (other than wood) in the provinces of Quebec, Ontario and Manitoba. The matter is of so much importance that that Return, which was then furnished by this Department, is here reproduced. In the course of my inquiries as to peat, I had some correspondence with Dr. G. H. Kinahan, formerly Director of the Geological Survey of Ireland, to whom I am indebted for valuable information on this subject.

COAL OR OTHER MINERAL FUEL SUPPLY IN THE PROVINCES OF QUEBEC, ONTARIO AND MANITOBA.

The following return was made by the Geological Survey to an Address by the Honourable Senator McMullen 'for all reports bearing upon the question of coal or other fuel supply in the provinces of Quebec, Ontario and Manitoba.' (No reference was made to wood, which still constitutes the chief fuel of these provinces, except in the cities and towns, as it was understood that the Return should apply to mineral fuel only.)

List of publications and references in the reports of the Geological Survey of Canada, etc.

List of publications referring to fuel.

PROVINCE OF QUEBEC.

Peat.

Combustible and carbonaceous materials (Eastern Canada), Geology of Canada, 1863, p. 771.

Peat and its applications, Report of Progress, 1866, p. 285.

Peat in the Province of Quebec, The Mineral Resources of the Province of Quebec, Report Geol. Survey, vol. IV, p. 85K.

Statistics of Peat Manufacture in the Province of Quebec, Report of Progress, 1871-72, p. 148,

Peat at Huntingdon, Report Geol. Survey, vol. VIII, p. 74A.

Peat at Charlevoix county, Report Geol. Survey, vol. V, p. 52A.

Peat at Rivière du Loup, Report of Progress, 1866-69, p. 141.

Peat in Eastern Townships, Report Geol, Survey, vol. VII, p. 91J.

Peat in Grenville township, Report Geol. Survey, vol. XII, p. 137J.

NOTE.—Dr. Chalmers, of the Geological Survey, has written a Bulletin on Canadian peat, giving a full account of the state of the industry, occurrences of peat bogs, &c., published by the Geological Survey.

Natural Gas.

Borings for gas at Louisville, St. Grégoire, &c. Annual Report, vol. IV, p. 74S.

Gas at St. Hyacinthe, Report Geol. Survey, vol. VI, p. 6A.

Borings at St. Grégoire, Report Geol. Survey, vol. XI, p. 62J.

Borings in vicinity of Three Rivers, Report of Progress, 1882-84, p. 13.

Gas occurrences in Champlain county, Report Geol. Survey, vol. XI, p. 122S.

Petroleum.

The Gaspé oil fields. Geol. of Canada, 1863, p. 789.

" Report of Progress, 1866, p. 260.

" " 1880-82, p. 14DD.

" Geol. Survey, vol. IV, p. 83K.

" " vol. V. p. 120.

" " vol. VI, p; 120S.

" Summary Report for 1902, p. 338.

Bituminous Shales.

Bituminous shales on Rivière à la Rose, Montmorency, Geology of Canada, 1863, p. 521.

Occurrences ot Anthraxolite on Island of Orleans, Geology of Canada, 1863, p. 525.

ONTARIO.

Lignite.

Lignite on Missinaibi river, Report of Progress, 1875-76, p. 326.

Lignite on Missinaibi river, Report of Progress, 1877-78, p 4C.

Lignite on Kenogami river, Report of Progress, 1871-72, p. 112.

Lignite on Abitibi river, Summary, 1902, p. 233.

Lignite on Missinaibi river, Ontario Bureau of Mines, 1894, p. 125.

Lignite in Northern Ontario, Ontario Bureau of Mines, 1901-03.

Anthraxolite, Ontario Bureau of Mines, 1896, p. 159.

Anthraxolite, Ontario Bureau of Mines, 1900, p. 51.

Peat.

Peat in Eastern Canada, Geol. of Canada, 1863, p. 771.

Peat bogs south of Ottawa, Report Geol. Survey, vol. XII, p. 137A.

Peat in Ontario, Summary Report Geol. Survey, 1902, p. 275.

Petroleum.

Petroleum in Western Ontario, Geology of Canada, 1863, p. 785.

Petroleum in Ontario, Report of Progress, 1866, p. 240.

Petroleum at Wequemakong bay, Report of Progress, 1866, p. 179.

Petroleum and Natural Gas in Ontario, Report of Geol. Survey, vol. V, part Q.

Petrolia and other Ontario oil pools, with sketch map, Report Geol. Survey, vol. XI, p. 135S.

Statistics and state of Petroleum Industry, Annual Reports of Mines Section from 1886 to 1903.

Oil in Raleigh township, etc., Summary Report Geol. Survey, 1902, p. 269.

Petroleum in Ontario, Paper by Dr. Bell, Trans. Royal Society of Canada, vol. V, p. 101.

Natural Gas.

Report of Natural Gas and Pretroleum in Ontario, Report Geol. Survey, vol. V, part Q.

Natural Gas in Essex, Report Geol. Survey, vol. VI, p. 77A.

Natural Gas in Lambton, Report Geol. Survey, vol. IV, p. 46A.

Natural Gas in Ontario, Report Geol. Survey, vol. XI, p. 117S, with sketch maps.

Statistics of Natural Gas and state of Industry, Annual Reports of Mines Section from 1886 to date.

Oil Shales.

Bituminous shales in Bosanquet, Lambton, Geology of Canada, 1863, p. 785.

Bituminous limestones at Kincardine and on Manitoulin island, Geology of Canada, 1863, p. 790.

Bituminous shale at Collingwood, Geology of Canada, 1863, pp. 622 and 784.

MANITOBA.

Lignite.

Exposure of lignite on Swan lake, Report of Progress, 1874-75, p. 34.

Eastern limit of Souris Coal Fields, Report of Progress, 1879-80, p. 16A.

Eastern Assiniboia and Southern Manitoba, Summary Report Geol. Survey for 1902, p. 181.

PUBLICATIONS (EXCLUSIVE OF MAPS) WHICH HAVE BEEN ISSUED BY THE GEOLOGICAL SURVEY IN 1904.

Publications in 1904.

In former years the need of publications by the Survey of the nature of "bulletins", by means of which the printing of papers or articles by members of the staff could be secured without undue delay, was seriously felt. A Geological Survey Bulletin issued as soon as ready in pamphlet form or even as an octavo volume would supply a medium through which officers of the Survey could readily give to the public the results of work in greater detail than is desirable for the pages of the "Summary Report," and yet more tentative in its nature than what would be necessary for a report, memoir or monograph giving the final opinions of its author. It was felt that an official bulletin would further have the advantage of placing, under one cover, papers or reports by officers of the Survey that are at present published in various scientific journals of this country, the United States and Europe, and that are therefore scattered and less easily obtainable by the Canadian public.

Volumes XIV and XV of the Annual Reports are nearly in type, and the printing of Volume XVI has been commenced. Mr. McConnell's full report on '*The Gold of the Yukon*' was placed in the printer's hands last November. It has often been found difficult to get all the individual reports at the same time, as they are written by so many different persons. A certain number of the composite reports have been placed for reference in the libraries of universities and other public institutions; but for most purposes, only one of the parts which go to make up the volume is required at a time, and a great element of its value depends upon its prompt receipt. It is therefore proposed, hereafter, to print and issue the whole edition of each individual report as soon as it is ready and to cease binding them together in the present form after Volume XVI has been completed.

New index.

It is also proposed, after the completion of this series of Annual Reports I to XVI, to compile a complete index of these volumes. Such an index has long been needed, both by our own staff and the scientists of every country with which we exchange publications, and it has been somewhat of a reproach to this survey that we have issued no index since 1885. That index answered—and still answers—its purpose admirably so far as regards the Progress Reports, but we have had nothing of the kind, since the discontinuance of these reports, except the very elementary index at the end of each volume, an index both inconvenient and quite inadequate.

In order to meet the demand for up-to-date information on the economic minerals of Canada, I commenced in 1903 the publication of a series of Bulletins, and in that year four were issued, namely, on Platinum, Zinc, Asbestus, and Shell Marl. During 1904 the following ten have been published:—Manganese, Molybdenum and Tungsten, Coal, Common Salt, Infusorial Earth, Mica, Graphite, Apatite, Peat, and Copper in Quebec and the Maritime Provinces, making fourteen in all at the present date.

Economic geology was made a special feature in all the field operations of the year, and therefore nearly all the reports of the officers in charge of this work may be regarded as having reference to this subject. The work of the chemists and the metallurgist of the Survey and of the staff of the Mines Section was wholly of an economic character. Five of the individual reports which go to make up the large volume called the Annual Report for the year are entirely of this nature and might have been issued as Bulletins. These are (1) Dr. Barlow's report on the Nickel and Copper Deposits of Sudbury District, (2) Dr. Poole's Report on the Pictou Coal-field, (3) Dr. Adams' Report

on the Deep Wells of the Island of Montreal, (4) Mr. Dowling's Report on the Coal-field of the Souris River, and (5) The Annual Report of the Section of Mines of the Department.

Five more Bulletins on economic minerals have been prepared by officers of the Survey, and will be published as soon as possible. They are on the following subjects :—Barytes, Clays suitable for the manufacture of bricks, tiles, pottery, etc., Building Stones, Corundum and Mineral Pigments.

We are collecting the data and preparing Bulletins on twelve other economic minerals, and it is hoped that most of these will be ready for publication before long. Counting the separate Bulletins, the Summary Reports in the present volume and the Annual Reports on economic minerals published by this Department in 1904, the total number is found to be larger than for any single year during the previous existence of the Survey.

The other Reports, Special Publications, &c. issued during the year are the following :---

Catalogue of Canadian Birds, Part III, pp. 733 by Professor John Macoun.

Contributions to Canadian Palæontology, Vol. III, (quarto) Part II, on Vertebrata of the Mid-Cretaceous of the North-west Territory pp. 81, and 21 plates, by Henry F. Osborn and Lawrence M. Lambe.

Contributions to Canadian Palæontology, Vol. III (quarto) Part III on Deyptosaurus Incrassatus (Cope). From the Edmonton series of the North-west Territory, pp. 27, (illustrated by eight plates,) by Lawrence M. Lambe.

Summary Report of the Geological Survey of Canada for the calendar year 1903, pp. 218, (with 8 maps, 2 sections and several other illustrations.) *Sessional document.*

Part AA, Vol. XV, with 8 maps, 2 sections and other illustrations by the Geological corps.

Report on the exploration of the Ekwan river, Sutton Mill lakes and part of the West Coast of James bay, Part F, Vol. XIV, pp. 60 by Mr. D. B. Dowling.

Report on The Pictou Coal Field, Nova Scotia, Part M., Vol. XIV, pp. 38 (with map) by Dr. H. S. Poole.

Report on the Artesian and other Deep Wells on the Island of Montreal, Part O. Vol. XIV, pp. 74, (with maps and illustrations,) by Dr. F. D. Adams and Mr. O. E. Leroy.

Report on the Origin, Composition and Geological Relations of the Nickel and Copper Deposits of Sudbury, Ont., pp. 237, (29 illustrations and 5 maps,) by Dr. A. E. Barlow.

Report on the Coal-field of the Souris river, Eastern Assinaboia, Part F., Vol. XV, pp. 45, (with illustrations) by Mr. D. B. Dowling.

Annual Report of the Mines Section for 1902, part S., Vol. XV, pp. 280, by Mr. E. D. Ingall and Mr. J. McLeish.

The Annual Report of the Mines Section for 1903, Part S, Vol. XVI, is in press, and is expected to be issued about the end of May.

COMMITTEES ON GEOLOGICAL NOMENCLATURE AND THE CORRELATION OF ROCK FORMATIONS.

Geological Nomenclature.

In the Summary Report of this department for 1902, page 17, it was explained that in May 1901, the writer was appointed by the Royal Society of Canada as convener of a committee of Canadian geologists, whom he was to select, to take into consideration the Nomenclature of Geological Formations in Canada. The progress subsequently made by this committee was also referred to in that report. The committee still exists and may do good work in connection with the nomenclature of the geological formations in Canada. But the settlement of various questions affecting the geology of both Canada and the United States demands more immediate attention.

Committees appointed.

For many years past there have been much discussion and controversy between geologists of Canada and those of the United States, and indeed among the geologists of each country itself, as to a variety of questions touching the relative ages, positions, etc., of the various groups and divisions of the rocks, especially the crystalline rocks, of the two countries. The want of agreement was particularly manifest in regard to the crystalline rocks of the Lake Superior region. It seemed to me that much of this disagreement arose from radical misunderstandings and that it was possible to overcome these, and to divert the energy spent by numerous geologists on endless controversy, to the more profitable employment of promoting the progress of original research. With this object in view, I corresponded, in 1902, with

Dr. Charles D. Walcott, Director of the United States Geological Survey and President Van Hise of the State University of Wisconsin and a member of that survey (in charge of the geology of the crystalline rocks) on the subject, and this led to the appointment of an International Committee to take into consideration all questions affecting geological nomenclature and succession in which the geologists of both countries are interested. This permanent or parent committee consists of Dr. C. W. Hayes (who is in charge of the purely geological work of the United States Geological Survey) and President Van Hise, representing the United States; Dr. Frank D. Adams, Professor of Geology in McGill University, and myself, representing Canada. This committee first met at Washington on January 2, 1903. It then appointed several special or sub-committees to investigate the rocks of various districts near the Boundary Line. One of them was the Lake Superior Committee which consisted of the following: for the United States, Dr. C. R. Van Hise and Professor C. K. Leith, of the United States Geological Survey and Dr. A. C. Lane, State Geologist of Michigan; and for Canada, Dr. Robert Bell of the Dominion Geological Survey, Dr. F. D. Adams of McGill University, and Professor W. G. Miller, Provincial Geologist of Ontario.

As was explained in my Summary Report for 1902, page 20, it was agreed at the above meeting in Washington, that the first practical steps towards a mutual understanding would be actual joint inspection by the respective special committees, of the rocks which might be in question, so that they might be discussed on the ground, and a decision reached in each case.

Work by Lake Superior Committee.

The Lake Supperior Committee was to commence field-work in the spring of the same year (1903), but shortly after the above meeting had been held, it was found that some of the United States geologists, would not to able to take part, and this work was reluctantly postponed until 1904, when we began operations in the Marquette district in Michigan on the 3rd of August, all the members being present. Our investigations in United States territory were in the states of Michigan, Wisconsin and Minnesota; while in Canada they were made in various localities in the country on the northern sides of Lakes Superior and Huron. Before separating at the conclusion of our field labours, we drew up a draft report at Thessalon, which embodied our conclusions. A typewritten copy of this report was, soon after, sent to each member for consideration.

In December, another meeting of the Committee was held in Philadelphia, at which all the members but one were present. After further

careful consideration and discussion at this meeting, our report has been printed. It is hoped that it will commend itself to all geologists as the best solution that can at present be offered of the difficulties which have been experienced in regard to the geology of the crystal line rocks of the Lake Superior region.

This report may be regarded as a new starting point in Lake Superior geology, and in view of the great importance of having at last arrived at reasonable conclusions, the many years of previous study involved, and the desirability of promoting harmony in this connection, a synopsis of the report is here given for convenience of reference.

Synopsis of the Report of the Special Committee for the Lake Superior Region

To C. Willard Hayes, Robert Bell, Frank D. Adams, and Charles R. Van Hise, general committee on the relations of the Canadian and the United States Geological Surveys.

INTRODUCTORY NOTE BY C. R. VAN HISE.

The report below of the special committee on the nomenclature and correlation of the geological formations of the United States and Canada is the first joint report of the geologists of the two countries. Before the death of Dr. G. M. Dawson, formerly Director of the Canadian Geological Survey, I had correspondence with him in reference to joint field-work in the Lake Superior region. It was agreed between us that such field-work should be undertaken, but his untimely death occurred before anything was done.

Note by C. R. Van Hise.

After Dr. Dawson's death, I continued correspondence upon the subject with Dr. Robert Bell, Acting Director of the Canadian Geological Survey. As a result of this correspondence, December 22, 1902, Dr. Bell wrote to Dr. C. D. Walcott, Director of the United States Geological Survey, suggesting a conference in reference to the mutual interest of the two Surveys. This letter led to the appointment of a committee—consisting of C. W. Hayes and C. R. Van Hise, for the United States Geological Survey, and Robert Bell and Frank D. Adams, for the Canadian Geological Survey—to consider all questions as to the successions of formations, and as to nomenclature, which concerned the two Surveys.

The committee, with C. W. Hayes as chairman, met for the first time at Washington, January 2, 1903. At this meeting several

special committees were appointed to consider different districts along the International Boundary. For the Lake Superior region, the following committee was appointed : for the United States, C. R. Van Hise and C. K. Leith, of the United States Geological Survey, and A. C. Lane, state geologist of Michigan ; and for Canada, Robert Bell and Frank D. Adams, of the Canadian Geological Survey, and W. G. Miller, provincial geologist of Ontario.

August 3, 1904, this special committee met in the Marquette district of Michigan, and during the six weeks following visited successively the Gogebic, Mesabi, Vermilion, Rainy Lake, Lake of the Woods, Animikie and original Huronian districts. After finishing the field-work, a report in preliminary form was drawn up.

In December, 1904, another meeting of the special committee was held at Philadelphia, further to consider the report, all members of the committee being present except C. R. Van Hise. At this meeting, the report of the subcommittee was completed.

Synopsis of Report.

Synopsis of report.

The special committee on the Lake Superior region, during the months of August and September, 1904, visited various districts in the Lake Superior country, their purpose being to ascertain, if possible, whether they could agree upon the succession and relations of the formations in the various districts, and could further agree upon a nomenclature appropriate to express the facts. The districts visited were the Marquette, the Penokee-Gogebic, the Mesabi, the Vermilion, the Rainy Lake, the Lake of the Woods, the Thunder Bay, and the original Huronian of the north shore of Lake Huron. In addition to the regular members of the special committee, other geologists were with the party for portions of the trip. Dr. C. W. Hayes, geologist in charge of geology, United States Geological Survey, and a member of the general committee, was with the party for the Marquette, Penokee-Gogebic, Mesabi, Vermilion, and Rainy Lake districts. Professor A. E. Seaman was with the party for the Marquette, Penokee-Gogebic, Rainy lake, Lake of the Woods, and Thunder Bay districts. Mr. J. U. Sebenius was with the party for the Mesabi district ; Mr. W. N. Merriam, for the Mesabi and Vermilion districts ; Mr. W. N. Smith, for the Thunder Bay district ; Mr. E. D. Ingall and Mr. T. Denis, for the Lake Huron district. The knowledge of these men was of great assistance to the committee.

In the Marquette district the committee found the upper series there exposed to be as follows : (1) Michigamme slate and schist, and (2)

Ishpeming formation. Locally within the Michigamme slate, and apparently near its base, is an iron-bearing horizon. The Clarksburg volcanics, a local phase of the Michigamme formation, were seen at Champion. The basal member of the Ishpeming formation is the Goodrich quartzite or Upper Marquette series. The next series is the Middle Marquette series, consisting of (1) the Negaunee formation, (2) the Siamo slate, and (3) Ajibik quartzite. Below this is the Lower Marquette series, consisting of (1) the Wewe slate, (2) the Kona dolomite, and (3) the Mesnard quartzite. At the base of the Lower Marquette series is an unconformity, marked by conglomerates bearing fragments of all the kinds of rocks seen in the underlying series. Two classes of fragments are especially abundant. These are (1) tuff, greenstone schist, and many kinds of greenstones which belong to the so-called green-schist series of the district, and (2) various kinds of granite and gneissoid granite. The Penokee-Gogebic series consists of (1) the Tyler slate, (2) the Ironwood formation, and (3) the Palms slate.

East of the Presqu'Isle river the lower sedimentary succession of the Penokee-Gogebic district was visited, here consisting of (1) cherty limestone and (2) quartzite.

In the Mesabi district the succession of the Mesabi series is as follows : (1) Virginia slate, (2) the Biwabik iron formation, and (3) the Pokegama quartzite. At the base of this series at Biwabik is a conglomerate which rests upon a series of slates and graywacke, the latter in nearly vertical attitude. The unconformity between the two is most pronounced.

In the Vermilion district the Upper series, where seen, consists of (1) Knife slates and (2) Ogishke conglomerate. The Ogishke conglomerate contains very numerous fragments of all the underlying formations noted—porphyrites, green schists, iron formation, granite etc —and we have no doubt that there is a great structural break at the base of the Ogishke. The series below this unconformity, the Vermilion series, consists of (1) the Ely greenstone and (2) the Soudan formation. The Ely greenstone is the dominant formation. It is mainly composed of green schists and greenstones, many of which show ellipsoidal structure. The other important formation of the Vermilion series is the Soudan iron formation. The structural relations of the Ely greenstone and the Soudan formation are most intricate. No opinion is here expressed as to their order.

In the Rainy Lake district the Couchiching schists form the highest formation at the east end of Shoal lake and at a number of other localities.

They are a series of micaceous schists graduating downward into green hornblendic and chloritic schists, which pass into a conglomerate known as the Shoal Lake conglomerate. This conglomerate lies upon an area of green schists and granites known as the Bad Vermilion granites. It holds numerous large well-rolled fragments of the underlying rocks, and forms the base of a sedimentary series. It is certain that in this line of section the Couchiching is stratigraphically higher than the chloritic schists and conglomerates mapped as Keewatin. On the south side of Rat Root bay there is also a great conglomerate belt, the dominant fragments of which consist of green schist and greenstone, but which also contain much granite.

In the Lake of the Woods area one main section was made from Falcon Island to Keenora, with various traverses to the east and west of the line of section. We were unable to find any belts of undoubted sedimentary slate of considerable magnitude. At one or two localities, subordinate belts of slate, which appeared to be ordinary sediment, and one belt of black slate which is certainly sedimentary, are found. In short, the materials which we could recognize as water-deposited sediments are small in volume. Many of the slaty phases of rocks seemed to be no more than the metamorphosed ellipsoidal greenstones and tuffs, but some of them may be altered felsite. However, we do not assert that the larger area may not be sedimentary in the sense of having been deposited under water. Aside from the belts mapped as slate, there are great areas mapped as agglomerates, but which seem to the committee to be largely tuff deposits, which also include extensive areas of ellipsoidal greenstones.

The committee could discover no structural breaks between the above formations of the Lake of the Woods. The various classes of materials—slates, agglomerates, and ellipsoidal greenstones—all seem to belong together. In short, these rocks in the Lake of the Woods seem to constitute one series which is very largely igneous or volcanic in origin, but does, as above mentioned, contain some sediments.

The ellipsoidal greenstone-agglomerate-slate series is cut in a most intricate way by granite and granitoid gneiss, which constitute much of Falcon island at the southern part of the Lake of the Woods and a great area north of the Lake of the Woods. These relations between the granite and Keewatin were seen on the north-west part of Falcon island and on a small island adjacent. They were also seen north of Keenora. At the latter place the rocks adjacent to the granite are banded hornblende and micaceous schists, very similar to the banded rocks of Light House point, at Marquette. At Hebe falls, the granite

and Keewatin series are seen to be in actual contact, the Keewatin being apparently intruded by the granites.

In the Thunder Bay district the committee visited especially the areas about Loon lake and Port Arthur. In the Loon lake area the succession is as follows: The top series is the Keweenawan, here consisting of sandstone above and conglomerate below, with interbedded basic igneous flows or sills. Below the Keweenawan is the Animikie. The contact between the Keweenawan and the Animikie was seen at two places. At both localities the conglomerate at the base of the Keweenawan bears detritus from the underlying series. The Animikie succession, which the committee saw near Loon lake, includes two phases of the iron-bearing formation with an interstratified belt of slate.

Near Port Arthur the higher slate member of the Animikie was visited by a portion of the party, and on previous occasions had been visited by the other members. This is the formation which is agreed by all to rest upon the Animikie iron formation.

At one place near Loon lake a test pit has been sunk to the bottom of the Animikie, and here, at the base of the formation, is a conglomerate, bearing fragments of the next underlying series—a graywacke slate.

In the original Huronian area—i. e., the area described by Logan and Murray as extending from near Sault Ste. Marie along the north shore of Lake Huron to Thessalon and northward—the committee examined a number of crucial localities. At the first of these, about five miles east of Sault Ste. Marie, near Root river, it studied the relations of Logan's lower slate-conglomerate.

The party next visited the abandoned limestone quarry north of Garden River station and examined the slate-conglomerate belt north of the limestone. The committee concludes that the rock on each side of the limestone is the upper slate conglomerate, the structure probably being anticlinal, possibly with faulting. This conclusion suggests that the same relation obtains at the Root river locality.

On the limestone point on the east side of Echo lake the following ascending succession was found, with monoclinal dip to the south-east: (1) white or gray quartzite, grading through graywacke into (2) a thin belt of conglomerate not exceeding twenty feet in thickness and containing numerous granite fragments. Above the conglomerate is (3) limestone in considerable thickness, and over this (4) the upper slate conglomerate.

On the west side of Echo lake, on the prominent bluff next north of the formation is nearly horizontal, but dips slightly into the hill. The total thickness of the limestone here seen was probably not more than fifty feet, and of the conglomerate below, not more than thirty feet. The lower five hundred feet or more of the bluff is the white quartzite.

Observations from Root river to Echo lake convince the committee that there is a considerable structural break in the Huronian. The upper series includes the following formations of Logan, viz.: white quartzite, chert, and limestone, yellow chert and limestone, white quartzite, red jasper conglomerate, red quartzite, and upper slate conglomerate. The lower series includes the lower limestone of Logan and the lower slate conglomerate, white quartzite, and gray quartzite.

Four miles east of Thessalon, on several islands off the coast, is a great conglomerate, mapped by Logan and Murray as gray quartzite. This conglomerate was found to rest unconformably upon the granite, the actual contact being observed upon one island opposite the northwest quarter of section twelve of the township of Thessalon. The fragments in the conglomerate are well-rounded and are largely granite, but there are also numerous pebbles and boulders of greenstone and green schist. On several islands adjacent to the conglomerate the massive granite includes many fragments of greenstone and green schist, showing the granite to be intrusive into a greenstone formation. Thus, in the complex against which the conglomerate rests we have a source both for the granite and greenstone pebbles and boulders. The relations here are believed by certain members of the party to show that the quartzite and conglomerate rest unconformably upon the greenstone, but other members felt that this conclusion is not certain.

The rocks called green chloritic schist by Logan, consisting of ellipsoidal greenstones, amygdaloids, agglomerates, and massive greenstones may be called the Thessalon series and should be excluded from the Huronian. If this series be excluded, the Huronian of Lake Huron consists of two series, an Upper Huronian and a Lower Huronian. The Upper Huronian extends from the top of the series, downward to and including the upper slate conglomerate; and the Lower Huronian extends from the main limestone formation to the gray quartzite, including its basal conglomerates.

General Conclusions.

There are certain general points which seem to be reasonably clear, and about which there is no difference of opinion. These are as follows :—

There is an important structural break at the base of the Keweenawan. The term "Keweenawan" should include substantially all of the areas which have been thus mapped, or mapped as Nipigon, by the Canadian and United States Surveys, and the State Surveys of Michigan, Minnesota and Wisconsin.

Below the Keweenawan is the Huronian system, which should include the following series :—In the Marquette district, the Huronian should include the Upper and Lower Marquette series, as defined in the monograph of the United States Geological Survey, or the Upper, Middle, and Lower Marquette series, as given in the previous paragraphs. In the Penokee-Gogebic district, the Huronian should include the series which has been called the Penokee-Gogebic series proper, and the limestone and quartzite which have local development, and which we visited east of Presqu'Isle river. In the Mesabi district, the Huronian should include the Mesabi series proper, and the slate-graywacke-conglomerate series unconformably below the Mesabi series. In the Vermilion district, the Huronian should include the Knife slates and the Ogishke conglomerates. In the Rainy Lake district, the Huronian should include that part of the Couchiching of the south part of Rainy lake which is limited below by basal conglomerate, as shown at Shoal lake. In the Thunder Bay district, the Huronian should include the Animikie and the graywacke series of the Loon Lake area. In the original Huronian area, the Huronian should include the area mapped by Logan and Murray as Huronian, except that the Thessalon greenstones should probably be excluded.

Unconformably below the Huronian is the Keewatin. The Keewatin includes the rocks so defined for the Lake of the Woods area and their equivalents. The committee believes the Kitchi and Mona schists of the Marquette district, the green schist (Mareniscan) of the Penokee-Gogebic district, the greenstone series of the Mesabi district, the Ely greenstones and Soudan formation of the Vermilion district, the part of the area mapped as Keewatin by Lawson in the Rainy Lake district not belonging structurally with the Couchiching, and probably the Thessalon greenstone series on the north shore of Lake Huron, to be equivalent to the Keewatin of the Lake of the Woods, and so far as this is true, they should be called Keewatin.

For the granites and gneissoid granites which antedate, or protrude through, the Keewatin, and which are Pre-Huronian, the term "Laurentian" is adopted. In certain cases this term may also be employed, preferably with an explanatory phrase, for associated granites of large extent which cut the Huronian, or whose relations to the Huronian cannot be determined.

The following succession and nomenclature are recognized and adopted :— Summary of report.

CAMBRIAN—Upper sandstones, etc., of Lake Superior.

Unconformity

PRE-CAMBRIAN

Keweenawan (Nipigon)[1]

Unconformity

Huronian { Upper (Animikie)

Unconformity

Middle

Unconformity

Lower }

Unconformity

Keewatin

Eruptive contact

Laurentian

Alphabetically signed by the committee as follows :—

FRANK D. ADAMS,
ROBERT BELL,
A. C. LANE,
C. K. LEITH,
W. G. MILLER,
CHARLES R. VAN HISE,

Special Committee for the Lake Superior Region.

REMARKS ON THE ABOVE REPORT.

The crystalline rocks treated of in the foregoing report have been studied in more detail in the three states traversed by the Committee than elsewhere, but most of them extend, not only to the Canadian Remarks on the report.

[1] Dr. Lane dissents as to the position of the Keweenawan as follows :

"The use of Pre-Cambrian above does not imply unanimity in the committee with regard to the Pre-Cambrian correlation of the Keweenawan—a topic the committee as such did not investigate."

side of Lake Superior, but far beyond to the northward and eastward. Owing to the greater number of geologists who have been employed in the three states visited and the larger means which have been placed at their disposal, the United States geologists have been able to work out in more detail than we, the rock-formations in question, as to their sub-divisions, characters, relations to each other, as to conformity, eruptive contacts or otherwise; whether certain rocks of similar description may not be of different ages, and *vice versa*, and as to various other matters, all leading to a complete classification and correlation. On the other hand, the Canadian geologists had examined the continuation of these rocks over greater distances and areas and could contribute their knowledge as to the relative extent, volume and importance of the various divisions.

This International Committee, therefore, consisted of a council, the members of which were able, after their joint field-work, to bring together the various kinds of experience necessary to arrive at more complete and harmonious conclusions as to the correlations of the rocks in question than has hitherto been found possible.

We recognized as good natural units of classification certain divisions by the United States geologists of what we had hitherto coloured on our maps as a single group or system of rocks under the general name of Huronian. Our knowledge of the differences which exist among these rocks in all parts of their distribution will enable us, without much re-examination, to represent the above divisions on our larger scale maps. A geological map, coloured uniformly on both sides of the boundary line, will have great advantages over the older and sometimes discordant ones, not only for geologists, but also for the use of prospectors and mining men.

The nomenclature and general classification adopted by the joint Committee, as the outcome of the research and accumulated knowledge of a great number of geologists working in the United States for half a century, bears welcome testimony to the wisdom of the older Canadian geologists and to the extent of their knowledge, even sixty years ago, as well as to the great amount and thoroughness of the work they performed. It is satisfactory to note that the formational names adopted in the table at the end of the above report, which represents the gist of our labours, are all of Canadian origin. An American equivalent is given in one case.

PRACTICAL CHARACTER OF THE WORK OF THE DEPARTMENT.

Economic character of the work.

As already stated, our labours are all in the direction of economic geology, although, to some persons this may not always be obvious. In the last Summary Report of this Department, a list was given of no fewer than 605 reports, etc., on economic geology, which had been published by the Geological Survey up to that date. The negative results of our work may be as important as the positive, by showing what areas or in what rocks useful minerals are not to be looked for, as well as those in which they may be found; for in this way the waste of much labour and capital may be prevented. It was estimated that the amount saved in one year in England, through its Geological Survey, by preventing the hopeless search for coal, alone, was more than the whole cost of that Survey from its inception. Similarly in Canada, much has been saved, owing to our own Survey having been the means of preventing profitlesss boring for coal in Ontario and Quebec. A geological Survey may be utilized to indicate the prospects for discovery and also of continued productiveness or otherwise of any mineral occurrence in the future. True and reliable geological descriptions of mineral occurrences or of mining districts are indispensable for the intelligent investment of capital for their development.

Although the direct and immediate search for individual 'mines' is not the principal object of the Geological Survey, yet numerous examples could be given of the discovery of valuable minerals and of other results which have been attained by its means. One of the earliest of these was the laying out of Wood's Location on Lake Superior by the advice of Sir William Logan, the first Director. It was on this location that the famous Silver Islet mine was afterwards discovered, which yielded immense quantities of the precious metal. Another example was the discovery of corundum in south-eastern Ontario, where it exists, of the best quality, in quantities which promise to outrival all other sources for the world's supply of this mineral.

Nickel at Sudbury.

Nickel was first found in 1848 by the late Alexander Murray, chief assistant on the Geological Survey, in the very heart of what is now the richest part of the Sudbury mining district, when this locality was far back in the midst of the dense primeval forest, which stretched from the then uninhabited shore of Lake Huron all the way to Hudson Bay. This discovery, and also that of rich nickel ore at the Wallace mine, on the coast of Lake Huron opposite to Sudbury, are fully described by Mr. Murray and also by Dr. Sterry Hunt in their respective reports for that year.

Bruce mines. The development of the copper vein at the Bruce mines was due to the careful personal examination and the favourable opinion of it by Sir William Logan at the outset. The working of these mines led to the discovery and development of the Wellington and the Huron Copper bay mines adjoining them to the west. The wealth in copper of the southern portion of the province of Quebec was first made known and fully reported upon by the Survey.

Petroleum. The natural laws governing the mode of occurrence of petroleum and terrestrial gas were demonstrated at an early date by Dr. Sterry Hunt and other officers of the Department, and this demonstration led to the economic exploiting of these products, not only in Canada, but also in the United States and other countries. The deep source of the petroleum of southern Ontario was first suggested by the writer in 1887 and his opinion is now verified by the recent discoveries at Leamington, and by other circumstances. The site at which to bore the famous natural gas well at Kingsville, in the County of Essex, was pointed out by Mr. Eugène Coste immediately after leaving the Geological Survey. The locality is on the crown of a great but low anticlinal, described in the Geology of Canada, 1863.

Salt. The probable existence of salt in the Onondaga formation on the east side of Lake Huron was repeatedly mentioned by members of the Geological Survey and the municipality of Goderich was encouraged to bore for it in that town. A contract for the purpose was let by the corporation to the late Mr. William Whitehead, and in 1865 rock salt was struck at a depth of 1,010 ft.

Iron. The vast deposits of manganese and iron ores on the eastern coast of Hudson bay were discovered and reported on by the writer in 1877.

Clay. The superior quality of a certain clay occurring near Milton, Ontario, for the manufacture of terra-cotta and the finest bricks, was discovered by practical trials made in the laboratory of the Geological Survey.

Gold. The existence of gold in eastern Ontario was first recognized by the late Mr. Henry G. Vennor of the Geological Survey in August, 1866, at an opening which was being made for copper in the township of Madoc by a man named Powell. The property became known as the Richardson mine. This initial discovery led to the making of others in the county of Hastings, and these encouraged the search in later years for the precious metal north of Lake Huron and west of Lake Superior.

The original source of the gold of the Klondike district and the causes which have led to its present distribution and mode of occurrence, as well as the prospect for future production, were first intelligently pointed out by Mr. R. G. McConnell of the Geological Survey.

The true nature, extent and origin of the gold-bearing veins of Nova Scotia, which are similar in all the gold districts of that province, were first demonstrated by Mr. E. R. Faribault, also of this Survey.

Value of geology.

A striking example of the value of a scientific knowledge of geology, derived from actual investigation, is the one referred to in a previous part of this report, of the recent finding of a thick seam of coal in Cumberland county, Nova Scotia, after boring in a previously untried area, through a great depth of barren rock, on the advice of Mr. Hugh Fletcher of this Department. This discovery may prove to be worth many millions of dollars, owing to the increase in the value of the large tract of land which may now be, for the first time, assumed to be underlaid by coal.

It is of great importance to be able, even now, to form some general idea of the prospect for finding valuable minerals throughout the vast and little-known regions which still form the greater part of the territory of Canada. Our preliminary or reconnaisance surveys all over this immense area, already enable us, in a general way, to conjecture what this may be on the mainland of the continent, even as far as the shores of the northern seas and on some of our principal islands in the arctic regions.

Use of the Survey.

Not only has the Survey been of great service to Canada in giving to the civilized world a knowledge of the topography, geology and mineral resources of the country, but in an equal degree, it has promcted the building of roads and railways, the extension of agriculture and the settlement of the country.

When the construction of the Grand Trunk Pacific railway was first proposed in 1902, the region to be traversed was found to be already fairly-well known all the way from Quebec to Winnipeg, as to elevations, topography, soil, timber, climate, fauna, flora, etc., as well as in regard to its mineral resources, through the work of the survey which the writer had been carrying on in nearly all parts of that region during the previous thirty-five years. The results of all this work, which had been fully reported and illustrated by maps, enabled our public men to judge of the feasibility of the undertaking, and much time was thus saved in arranging for the construction of the railway.

The foregoing examples are only a few of the many which might be given in illustration of the important direct economic advantages which we have gained from the work of the Geological Survey and which far outweigh its cost, to say nothing of the many and great scientific results which form the principal part of Canada's contribution to the general progress of knowledge among the nations.

ECONOMIC GEOLOGY IN BRITISH COLUMBIA AND THE YUKON TERRITORY.

British Columbia and the Yukon.

Following up the traditions of the Department in prosecuting the methods of the Geological Survey of Canada for the purpose of ultimately discovering economic minerals, it appeared to the writer that the prospects of success in this way in British Columbia and the Yukon Territory would warrant a considerable extension of our operations in these regions, which seem to be greatly favoured with mineral wealth. Accordingly, I requested the then Minister of the Interior to provide $19,000 to meet the expenses of this work during the financial year 1904-5. This amount was granted by Parliament and a similar sum has been placed in the estimates for 1905-6 for the continuation of these investigations. Last year, a large amount of labour, in the aggregate, was performed in the above sections of the Dominion by Messrs. Joseph Keele, R. G. McConnell and his assistant Mr. F. H. Maclaren, and by Dr. R. W. Ells and his assistant Mr. R. A. A. Johnston, and by professor R. W. Brock and his assistant Mr. W. H. Boyd. Preparations have been made, including the purchase of a supply of field-instruments, to prosecute this work with vigour during the present year.

PROVINCIAL MINING BUREAUS.

Provincial mining bureaus.

The work of the Dominion Geological Survey in economic geology is supplemented by the mining bureaus which are established in some of the provinces.

In British Columbia a large amount of information is given every year in the report of the Minister of Mines, as to prospecting, the discovery of minerals, the progress of mining, &c. This is collected partly by the provincial mineralogist, Mr. W. F. Robertson and his assistant Mr. Herbert Carmichael, from personal observation, and partly by correspondence.

The province of Ontario has a well-conducted Bureau of Mines, under the direction of Mr. Thomas W. Gibson. This is the only province which has yet done any systematic field geology. During the year 1904, the efficient provincial geologist, professor W. G.

Miller, aided by Mr. Cyril W. Knight, mapped out in detail the distribution of the interesting series of rocks on the west side of Lake Timiskaming, where are situated the veins discovered in November, 1903, holding cobalt, silver, copper, nickel and arsenic. He has also just published a bulletin on the limestones of Ontario. Professor A. P. Coleman of the University of Toronto continued his investigations among the nickel-bearing rocks of the Sudbury district in connection with the Bureau, and Dr. J. M. Bell was again engaged in its service exploring and surveying in the country on the north side of Lake Superior.

Quebec.

In the province of Quebec, the government Inspector of Mines, Mr. J. Obalski, in 1904 made a geological reconnaissance in the country north-west of Lake St. John, parts of which had been explored in different years by several of the members of the Geological Survey. On this journey Mr. Obalski was fortunate enough to discover some promising occurrences of economic minerals, among them being gold, copper-ore and asbestus. The gold is in the form of free particles in a very large vein of quartz. It is very probable that other gold-bearing veins will be discovered in the same belt of rocks. In 1895 and '96 the writer brought home samples of quartz from well-defined quartz veins cutting similar Huronian rocks on the Bell river in the same region, some of which, on assay, proved to be auriferous. The copper ore consists of the yellow pyrites (chalcopyrite) in a quartz vein, while the asbestus (chrysotile) occurs in serpentine and is of a good quality. The fibre of some samples is fully three inches in length. Mr. James Richardson of the Geological Survey had found copper-pyrites in a different locality in the same neighbourhood, when exploring in this district in 1870. The above minerals all occur in an extensive belt of Huronian rocks, (shown on the geological map published by the writer in 1903, which covers the basin of the Nottaway river and other portions of north-eastern Quebec.)

Nova Scotia.

In Nova Scotia, the royalties derived from coal and gold have long been an important item in the revenue of the province; and its Department of Mines has for many years issued an annual report on the condition of the mining industry. Heretofore, however, the local government has not done much in the way of purely geological work, nor as to scientific inquiry into the mineral resources of the province. But it is now proposed by the provincial authorities to institute some geological work with special reference to economics. This would supplement the work of the Dominion Geological Survey which has

been carried on for such a long period in Nova Scotia with entire satisfaction to its people and especially to the mining community.

PETROLEUM AND NATURAL OR TERRESTRIAL GAS.

Petroleum.

Our knowledge of the general distribution of petroleum and the conditions under which it has accumulated, in commercial quantities, in certain places in the earth's strata continues to increase with the progress of the scientific exploitation of these products all over the world. It appears to be now pretty well ascertained that rock oil may be looked for in unaltered sediments of any age from the Cambrian to the Tertiary, wherever certain conditions of structure and superposition of strata are present. In view of the results which are being obtained elsewhere, it is probable that new oil-fields will be found in Canada, whose vast extent offers such a variety of geological conditions.

The country lying along and to the west of the Athabaska river, from a point above Fort McMurray to Athabaska lake, is a particularly promising field. The "tar sands" which form the surface in this region are, in places, 100 feet or more in thickness, and consist of uniformly fine sand of Cretaceous age, saturated and blackened by inspissated petroleum, which, in past times, has ascended through the underlying strata from a considerable depth. These deposits are described in my report for 1882 on the Athabaska river, and in Mr. R. G. McConnell's report for 1900. In a paper presented to the Canadian Institute by the writer in 1883 it was stated that petroleum was reported as occuring in different localities on the Mackenzie river and elsewhere in the North-west Territories beyond the Athabaska.

Inspissated petroleum is reported to have been found at Egg lake and near Morinville, both lying to the northward of Edmonton. A boring for petroleum was made by the Geological Survey at Pelican rapids on the Athabaska river between Athabaska Landing and Fort McMurray. A flow of gas, under strong pressure, was struck at this boring in 1898 and it has been blowing off with a roaring noise ever since. Experiments for the finding of petroleum are to be made this year by the Canadian Northern Railway Company in the region lying immediately to the north of Edmonton.

Small quantities of petroleum of fine quality come to the surface in several places near Pincher Creek in the south-west angle of the Province of Alberta and also on some of the tributaries of Flat-head river in the south-east angle of British Columbia and not far from the same neighbourhood. The geological conditions, in the two localities just

mentioned, seem to resemble those of the oil district in Colorado. If the crown of an anticline with low or moderate dips could be located at some distance out from the foot of the Rocky mountains in this latitude, it might prove a profitable experiment to bore into it in search of petroleum. In this connection, it is important to ascertain the strike of any undulations which may exist in the strata underlying the great plain east of the Rocky mountains in Alberta. Indications of petroleum have been reported from other places in British Columbia ; also from Vancouver island and the islands of the Queen Charlotte group. At Medecine Hat, where the Canadian Pacific railway crosses the South Saskatchewan river, natural gas is obtained in commercial quantities in Tertiary strata at a depth of a little over 1,000 feet.

The breadth of the original oil-field of southern Ontario has been extended within the last few years by the finding of producing wells in various directions, especially at Leamington, Raleigh and Bothwell, and it is now ascertained that the oil has a more deeply seated origin than had been supposed from the experience of Oil Springs and Petrolia.

Gas. At Hepworth, about eight miles southward of Wiarton, in the county of North Bruce, several holes have been bored down to the Trenton formation, which have afforded sufficient gas for lighting the houses in the vicinity, but, as yet, no petroleum has been struck. Borings that have been made during 1904 in the eastern part of Manitoulin island are said in some cases to have met with gas and small quantities of petroleum.

BOTANICAL.

Botany. The publication of volume VII of Prof. Macoun's "Catalogue of Canadian Plants" completed this important work and left the author free to attend to other botanical subjects, part of which has been the cataloguing of the large collections he made during the year—in the mountains of the National Park. Among these he finds upwards of forty species of flowering plants new to botany, the Compositæ and Cruciferæ being the most largely represented. Besides these, there is a still greater number of new species among the lower orders, especially the mosses.

About twelve new species of violets have been discovered by the botanists of the survey in the last few years and have been described and figured in the *Ottawa Naturalist.* Many species of flowering plants not previously known to occur around Hudson bay were collected in 1904 by Mr. Spreadborough, assistant to Mr. O. O'Sullivan, in surveying the shores of James bay. Descriptions and illustrations of the

eleven new flowering plants obtained at different times, by the officers of the Survey, around Hudson bay, have been written and will be incorporated in a bulletin on the flora of the bay, which is being prepared.

Our field men, going to all parts of the Dominion, are asked to make notes on the forests. The finding of a new birch tree by Mr. McInnes in the Winisk River region shows that important discoveries may still be made in this department. Mr. J. M. Macoun spent the year at important in-door work in Ottawa, with the exception of an investigation of the aquatic plants of the St. Lawrence, an ivestigation which had some interesting results.

WORK AT HEAD-QUARTERS.

Work at Headquarter.

Dr. Hoffmann and Mr. Wait performed all the work of the chemical laboratory during the year, Mr. R. A. A. Johnston having been withdrawn for other duties. In the metallurgical laboratory, Mr. Connor worked, under instructions from the Minister of the Department, most of the year for another branch of the public service. In the mines section, Mr. Ingall and Mr. Denis, having been engaged, part of the summer, in field-work, the results of which required their attention in winter, a greater share than formerly of the duties of the section were performed by Mr. McLeish and Mrs. Sparks. It will be seen by Mr. Senecal's report that a large amount of map making and engraving has been accomplished. The numerous maps issued by the Survey still maintain their high reputation for accuracy and usefulness and for the excellent character of their execution. During the year, we have added considerably to our stock of surveying instruments. The services of Mr. Broadbent, Museum assistant of the Department, were given to the Exhibition commissioners for the whole year, with special reference to the St. Louis' Exhibition. He had acquired a knowledge of where to obtain good specimens of our economic minerals, and continuing to follow the methods of the Geological Survey, he secured an excellent collection, which served to illustrate Canada's great mineral wealth. During the summer Mr. R. A. A. Johnston acted as Dr. Ells' assistant in both Nova Scotia and British Columbia. Soon after his return he was instructed to make a study of Canadian meteorites. This has had the effect of bringing to light and recording a great deal of very interesting information which would otherwise have been lost. Mr. Johnston is preparing an illustrated bulletin on the subject. Up to a few years ago we had definite information as to only three or four meteorites which had fallen in Canada. Mr. Johnston's investigations enable him to describe at least fifteen well-authenticated falls of these

Meteorites.

bodies, beside disposing of a number of supposed meteorites which proved to be something else.

Palæontology

In the Palæontological branch, Dr. Whiteaves' report describes the progress which has been made in connection with invertebrates; and Mr. Lambe's as to vertebrates. Commander Low, during the cruise of the *Neptune* in our northern waters, obtained some collections of fossils of much interest, most of which, on his return, were placed in Dr. Ami's hands to be examined and reported upon. Some valuable additions have been made to our zoological collection, the principal one being that of the skins of six musk oxen obtained by Mr. Low from the region lying to the west of his winter quarters. They embrace three bulls, two cows and a calf. Mr. J. B. Tyrrell generously presented to the Museum the skins of three specimens of the northern species of Rocky Mountain goat, representing the male, female and young. The large collection of insects which was purchased some years ago from Col. Geddes was overhauled last autumn by Mr. C. H. Young who restored most of it to a better condition.

Archæology.

Our archæological collection received a most important addition during the year through the purchase, by a special appropriation, of the large collection of Mr. D. G. Price, of Aylmer, Ontario. Mr. Price had been many years in making this collection. In all, there are approximately 9,000 pieces, including damaged and fragmental specimens. The principal part of it consists of stone, bone and burnt clay articles from the region lying along the north side of Lake Erie, illustrating the life and habits of the extinct Tobacco Nation, and, from its completeness, it has a special value.

Museum.

Our present Museum is so much overcrowded that none of the new additions can be properly displayed, and but few of them can be exhibited at all. All that we can do at present is to secure as much good material as possible and store it up for exhibition in the Victoria Museum, the building of which has at last been commenced.

Mineral collections.

We have, as in former years, supplied a considerable number of named collections of good mineral specimens to educational institutions in all the provinces. It would be impossible to send these collections to all who ask for them. But we endeavour to supply such High schools, Collegiate institutes, etc., as evidently make a special feature of teaching mineralogy and geology. In the hand of competent teachers these collections induce pupils to take a real interest in the study of mineralogy, and they may gain a knowledge of the subject that will afterwards be of practical value to them.

Work of Acting Director.

In addition to my field-work as a member of the International Committee of Geologists on the Crystalline rocks of the Lake Superior region, I took sufficient time from the arduous duties of the office to attend the 8th International Geographical Congress at St. Louis, Mo., in the latter part of September, to which I had been delegated by the Canadian Government Geographic Board. I afterwards visited New York to endeavour to induce a portion of the delegates of the British Iron and Steel Institute to visit Canada, but found that, much to their regret, the time at the disposal of the members would not admit of their doing so. During the Christmas holidays I attended a meeting of the above mentioned International Committee of Geologists in Philadelphia to further consider our report on the rocks of the Lake Superior region. During this period I also attended the annual meeting of the Geological Society of America as one of the delegates to invite the society to hold its next annual meeting in Ottawa, which invitation was accepted. In the first days of January, I was present, by request, as a delegate of the Canadian Forestry Association, at the Forestry Congress held in Washington.

OFFICERS' REPORTS.

The Kluane Mining District.

(South-western Portion of Yukon District.)

By Mr. R. G. McConnell.

Situation.

The Kluane mining district is situated along the north-eastern slopes of the St. Elias range, in the vicinity of Kluane lake, Yukon. It includes creeks such as Bullion creek and Burwash creek, draining the north-eastern slopes of this range, and also creeks such as Ruby and the Fourth of July, which traverse and obtain their auriferous supplies from the bordering ranges on the north.

Discovery.

Indians reported the presence of gold, on streams tributary to the Alsek, early in the summer of 1903, and on July 4 of that year Discovery claim, on Fourth of July creek, was staked by Dawson Charlie, a well known Indian from Cariboo Crossing. Two days later Discovery claim on Ruby creek was staked by W. H. Weisdepp, and discoveries on other creeks in the vicinity quickly followed. In the same season coarse gold was found on a number of the smaller streams draining the north-eastern slopes of the St. Elias range. Bullion creek, a tributary of Slims river, was staked on September 28 by a party of miners consisting of Messrs. Altamose, Ater, Smith and Bones; members of the same party staked discoveries on Sheep creek, near the head of Kluane lake, in October, and on Burwash and Arch creeks in May, 1904. The former flows into the Kluane river a short distance below Kluane lake and the latter into the Donjek river. All the streams draining this portion of the St. Elias range are tributary to White river. Besides the streams mentioned, discoveries have been staked on Kimberly, Telluride, Canada, Vulcan and other streams of the St. Elias range, and on McKinley, Dixie, Marshall, Gladstone and other streams draining the Ruby range. The area of coarse gold discovery extends along the base of the St. Elias range for a distance of over seventy-five miles, and has a maximum width of about thirty miles.

Access.

The district is reached by waggon road from Whitehorse, the terminus of the Whitehorse railway. The road from Whitehorse follows a rolling plain bordering the left bank of the Lewes river to the crossing of the Takhini river, from which point a wide, continuous valley,

occupied successively by the Takhini river, the Dezadeash river, Bear creek and Christmas creek, extends through to Kluane lake. Between Bear creek and Christmas creek a summit about 900 feet in height is crossed. The road from Whitehorse to Kluane lake has a total length of 143 miles. The Takhini river is navigable for light draught steamers, and the haulage of freight can be reduced about fifty miles by bringing it up this river on boats to Mendenhall landing, the point at which the road leaves it.

Previous explorations.

Previous explorations in the district are limited to the expedition of Messrs. W. J. Peters and A. H. Brooks of the U. S. Geological Survey in 1899 from Pyramid harbour by way of Kluane lake to Eagle city, on the Yukon, and the topographic work of Mr. J. J. McArthur, Department of the Interior, Canada, in 1900. A report on the principle features of the geology and topography of Mr. Brooks' route is published by him in the twenty-first annual report of the U. S. Geological Survey 1899-1900.

Topography.

The district is varied in its topographic features; it includes a portion of the St. Elias range and extends north-eastward across the Shakwak valley into the flanking ridges and mountain groups.

The St. Elias range is exceedingly rugged in character. Viewed from the hills on the north it presents a complex of sharp, broken crest lines irregular in direction and rising in places into bold, rocky projections, some of which reach a height of over 10,000 feet above the sea. The numerous small streams which drain the northern slopes of the range in the vicinity of Kluane lake occupy deep, rock-walled valleys, scarcely wide enough in places to permit the passage of the streams. The larger drainage channels, on the other hand, such as Duke and Slims river, possess large valleys and are bordered by wide flats, which extend back into the range for many miles. The central part of the St. Elias range is covered with almost continuous snow fields, pierced in places by dark rocky points; smaller snow fields survive the summer on all the principal mountain groups and ridges. Glaciers occur at the heads of all the principal streams. The great Kaskawulsh glacier, the largest in the district visited, descends from the central nevé, and has a length of over twenty miles. Two large rivers issue close together from beneath this glacier, the Kaskawulsh, one of the main branches of the Alsek, and Slims river, one of the sources of the Yukon.

Interlocking valleys.

The country stretching northward and eastward from the St. Elias range is characterized by broad interlocking valleys enclosing mountain groups and ridges usually from 3,000 to 5,000 feet in height.

Geological Survey of Canada

ROBERT BELL, D.Sc., (Cantab), M.D., LL.D., F.R.S., I.S.O., ACTING DIRECTOR.

1905

SKETCH MAP of KLUANE MINING DISTRICT YUKON TERRITORY

To illustrate Summary Report of
R. G. McCONNELL, B.A.
1904.

Scale of Statute Miles.

139 138

Alsek River

Gladstone Cr

Quill Cr

Edge of St. Elias Range

Duke River

Trail to Kluane Lake

Burwash Creek

Congdon Cr

Sheep Cr

Sheep Camp

Coin Cr

Boulton Cr

Kluane Lake

2500'

Robbins Cr

Cultus Cr

Christmas Cr

Silver Cr

Whitehorse-Kluane Lake

Vulcan Cr

Jessie Cr

Boultbee Cr

Kluane Hills

Gardiner Cr

Fourth of July Cr

Mile Cr

Larose Cr

Twelfth of July Cr

Fireworks Cr

Little Ruby Cr

Ruby Range

Ruby Camp

2850'

Granite Cr

Lake Cr

McKinley Lake Cr

Waggon Trail

Dixie Cr

Griffin Cr

Hungry Lake

Waggon

Sulphur Lake

2350'

Trail to Silver Lake

Whitehorse Road

Road House

2880'

Little River Cr

Bear Cr

Telluride Cr

Superior Cr

Bryson Cr

Jarvis River

Kathleen Cr

Road House

1800'

Deadbroke River

Slims River

Canada Cr

Columbia Cr

Kaskawulsh Glacier

Kaskawulsh River

St. Elias Range

Explanation of Colours and Signs

- Pleistocene valleys, floored with boulder clay and other glacial deposits, and stream gravels.
- Tertiary. Effusive rocks. Alternating beds of basalt, andesite, rhyolithe, and red, grey and black vesicular lavas.
- Tertiary? Lignite-bearing beds. Tuffs, sandstones, grits, conglomerates and shales containing occasional lignite seams.
- Rocks of the St. Elias range (Mostly Upper Palæozoic) Green and dark schists, limestones, tuffs and cherts, pierced by numerous small intrusive masses of diorite, granite, pyroxenite, andesite, rhyolite and dunite.
- Kluane Series (Probably Cambrian) Altered clastics, principally dark and grey quartzmica schists.
- Coast Range Granite. Gives medium-grained biotite-granite, occasionally porphyritic.
- Creeks in which coarse gold has been found.
- Gold discoveries.
- 2500 Heights in feet above sea-level.

Sources of Information.

Triangulation Survey by J. J. McArthur, D.L.S., Department of the Interior, 1900.
Instrumental and pack Surveys by R. G. McConnell, B.A. and F. H. Maclaren, B. Sc., 1904.

Drawn for photolithography by H. Lefebvre.

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The valleys are much older than the present drainage system. They have a width of from two to five miles or more, are flat-bottomed, and are floored with glacial deposits. The rivers which occupy them at present flow in narrow secondary valleys seldom excavated to sufficient depth to reach bed-rock.

Shakwak valley.

The great Shakwak valley at the foot of the St. Elias range is an important topographic feature. Its origin is unknown. It is now occupied by a number of different streams and lakes and is crossed transversely by the valley of the Dezadeash. Kluane lake, a large sheet of water forty miles long and three miles wide, with two arms, one twenty-seven miles in length, is situated in this depression. North-east of the upper end of Kluane lake are the Kluane hills, a worn ridge with an elevation of about 5,000 feet above the sea. These hills are bordered on the north by the wide valley of Upper Jarvis river, Kloo lake and Cultus creek, beyond which the country rises again into the Ruby range. Farther to the south a prominent elevated mass is enclosed by the Shakwak valley, Dezadeash lake and the great bow which the Dezadeash river makes to the east. The name Dezadeash mountain is proposed for these elevations. The summits of these mountains and the Ruby range reach elevations of about 7,000 feet above the sea. They probably represent erosion remnants of an old low level plain, since elevated some thousands of feet and partly destroyed.

Drainage

The drainage of the district flows partly north by way of White river to the Yukon and partly south by the Alsek to the Pacific. Dezadeash river heads in Dezadeash lake, and after making a great bend to the east, turns westward towards the St. Elias, and through it to the sea. It is joined, after entering the mountains, by the Kaskawulsh river, heading in the Kaskawulsh glacier, the two streams forming the Alsek river. Jarvis river, like the Dezadeash, also enters the St. Elias range from the lower region bordering it on the north. It is tributary to the Kaskawulsh river and drains the southern slopes of the Ruby range and a portion of the Kluane hills. The White river drainage system is represented by Slims river, the principal feeder of Kluane lake, and by a number of other smaller streams flowing from the north and south into Kluane lake and its outlet, Kluane river. Slims river heads in the same glacier as the Kaskawulsh river, and the two streams occupy portions of a wide continuous valley connecting the White river and Alsek drainage systems inside the mountains.

Alsek river.

The Alsek river has twice been dammed in comparatively recent times, probably by the extension of glaciers across its valley, and long

deep lakes were produced which extended far up the valleys of the Dezadeash and Kaskawulsh rivers. Fresh lake beaches, cut in loose talus slopes and still covered in places with drift wood, line the valley of the Dezadeash at the point where it enters the St. Elias range up to an elevation of 150 feet above the present water level; older, more worn beaches occur up to an elevation of 300 feet. The older beaches are covered with the ordinary forest growth of the region, and probably date back some hundreds of years, while the younger ones support only a few young spruces, seldom exceeding three inches in diameter, and groves of willows, small aspen and balsam poplar. The upper limit of the young beaches is plainly marked all along the valley of the Dezadeash, up to a point about midway between Marshall river and Canyon river, by this sudden change in the forest growth. Judging from the character of the beaches themselves, the undecayed drift-wood, the young vegetation and the stories current among the Indians, it is probable that the lake which produced these beaches existed less than a hundred years ago.

Forests.

The forest trees of the district consist only of the white and black spruces, the aspen, the balsam poplar and an occasional birch. As elsewhere in the Yukon territory, the white spruce is the most important tree. Considerable groves exist along the lower part of Slims river, on Kluane lake, on Silver creek and other places, but the district, as a whole, cannot be considered well wooded, and the supply of timber suitable for mining and building purposes is limited. The tree line in the St. Elias range has an altitude of about 4,200 feet above the sea, and the bordering ranges of about 4,700 feet. The upper portion of most of the auriferous streams rises above the timber line and much difficulty is experienced in obtaining the fuel and lumber reqired.

GENERAL GEOLOGY

The district reported on includes two distinct geological provinces, namely, the St. Elias range and the flanking ridges and hills which border it on the north.

The country lying along the northern base of the St. Elias range is underlaid by a series of dark gray quartz-mica schists resembling in colour, composition and degree of alteration the argillaceous members of the Nasina series as developed along the Yukon river. These schists will be referred to as the Kluane schists.

Kluane schists.

The Kluane schists outcrop over a considerable area; they occur all along the Kluane hills which border the northern shore of Kluane

lake and they extend eastward across the valley of the Jarvis river and Kloo lake into the Ruby range. The eastern boundary of the formation crosses the Dezadeash valley at Aishihik river. The Kluane schists have not been followed south of the Dezadeash valley, but must extend a considerable distance in this direction as they cross the valley in a band fully twenty miles wide. They were traced northward to a point near the lower end of Kluane lake, where they are replaced by gray granites and green schists.

Shakwak valley.

The wide Shakwak valley, at the base of the St. Elias range, is floored with gravel, and the junction between the Kluane schists and the rocks forming the St. Elias range was only seen in one section. North of the point at which Jarvis river enters the St. Elias range, micaceous schists, which are referred to the Kluane series, occur at the base of the range underlying less altered dark and green slaty rocks and schists. They were not found in the interior of the range either in place or in the wash of the streams, and it is doubtful if they outcrop again towards the southwest.

Kluane schists.

The general strike of the Kluane schists is W. N. W. and is approximately parallel to the direction of the St. Elias range. The strike is very regular except near intrusive masses. The dip of the schists, both in the Kluane hills and in the southern slope of the Ruby range is N. N. E. or away from the St. Elias range at angles of from 30° to 60°. Near the eastern limit the influence of a great granite mass east of Aishihik river is felt; the dips become steeper and, in places, the beds are overturned. The schist, in the single exposure found along the base of the St. Elias range, dips to the south under the range or in the opposite direction to the inclination of the beds in the Kluane hills, the first foot-hill range to the north. The intervening valley has probably been excavated along the crest of a wide anticline.

The Kluane schists consist almost entirely of a great series of well foliated quartz-mica schists, varying somewhat in colour and degree of alteration, but very homogeneous throughout. Like the Nasina series they are ancient clastics, partially and, in places, entirely, recrystallized. They differ from the Nasina series in the absence of quartzite and limestone bands. Mineralogically they consist essentially of lines and small lenticular areas of quartz and feldspar grains separated by curving lines of biotite and a white mica. A specimen from an exposure north of Jarvis river, where it enters the St. Elias range, contained, in addition to the usual minerals, numerous grains of glaucophane and epidote.

The Kluane schists, with the possible exception of a band of granite gneisses, which borders them on the north, are the oldest rocks in the district. They are pierced in several places by granite areas resembling the coast range granites, and probably belonging to the same period.

The geology of the small portion of the St. Elias range hurriedly examined during the past season is exceedingly complicated and is, as yet, imperfectly understood. The bedded rocks are broken at frequent intervals by intrusions of various kinds, and the sequence of the formations differed in all the valleys ascended. It was found possible to discriminate four great series of rocks, none of which are probably older than Upper Palæozoic. North of Jarvis river the Kluane schists are overlaid at the foot of the range by several thousand feet of green schists interbanded with dark shaly beds. These are probably the oldest rocks in the portion of the range examined. They have a wide distribution, being found on the lower part of Kaskawulsh river, on Slims river, on Bullion creek, and along the foot of the range on Burwash creek and Duke river.

The green schists of this series differ greatly in the degree of alteration they have undergone. In a few places they are completely altered into glossy chloritic schists, while in many of the sections their fragmental origin is still evident in hand specimens.

Limestoue bands.

The green schist series is overlaid by alternating bands of limestone, green schists and dark slaty rocks passing in places into a hard cherty variety. A few fragments of corals collected on Bullion creek indicate a carboniferous age for this group. The green schists of this series are similar in appearance to those in the underlying group. The limestone, when unaltered, occurs as a hard, dark, compact rock, but in most instances it has been partially or wholly recrystallized into a gray granular variety, and in extreme cases has been altered into a snow-white, even-grained marble. A wide band of limestone at the head of Sheep creek has been shattered and crushed into a rock difficult to distinguish from an agglomerate. The crushed limestone often carries iron, and, when weathered, displays bright red colours.

The mountains bordering the Dezadeash river, from the point where it enters the St. Elias range to its junction with the Kaskawulsh, a distance of seven miles, are built almost entirely of a great series of tufaceous beds which are probably younger than the schists of the preceding group. These beds form a definite group and will be referred to as the Dezadeash series. They have a thickness of fully 10,000 feet. They occur both in heavy beds, usually gray, and in thin alternating dark and grayish bands, the former hard, compact and occasionally

cherty, the latter coarse, granular and soft. The lowest beds of the series occur along the base of the outer range, where they are altered into hard flags, and, in places, are almost schistose. The higher beds, except where pierced by a couple of intrusive masses, show only slight traces of alteration and are often soft and friable. The tuffs of the Dezadeash series are replaced, ascending the Kaskawulsh river, by green schists. The character of the contact was not ascertained.

Tufaceous beds.

The fourth subdivision of the rocks of the St. Elias range largely consists, like the preceding one, of beds of tufaceous origin, but include gray sandstones, grits, conglomerates, dark shales and occasional lignite seams. Two areas of these rocks occur in the portion of the range examined, one on Kimberley and Telluride creeks, two tributaries of Jarvis river, and the other at the head of Sheep creek. The Sheep creek beds are less indurated than those on Kimberley creek, include a larger proportion of tuffs and occur in brightly coloured alternating green, red and brown bands.

The rocks of this group are very similar to the lignite-bearing beds in the vicinity of Dawson, which have been referred by Dr. Knowlton, of the United States Geological Survey, on the evidence of fossil plants, to the Eocene. They are strongly folded and have participated in the principal mountain-making movements which produced the range.

A great variety of massive igneous rocks occurs in the St. Elias range. The specimens collected have not yet been examined in detail, and only brief descriptions can be given here.

Granite.

Granite.—A small area of gray medium-grained granite cutting limestones and green schists occurs at the south end of Kluane lake. Large areas of granite must occur in the interior of the range, a large proportion of the material brought down by the Kaskawulsh glacier consisting of granite pebbles and boulders.

Diorite.

Diorite.—Areas of diorite occur at the mouth of Vulcan creek, on the lower part of Bullion and Sheep creeks, on the Dezadeash river, and at the upper canyon on Burwash creek. Diorite pebbles were also found in the wash of a number of streams heading in high peaks which were not visited. The diorites vary from a quartz diorite consisting essentially of hornblende, biotite, labradorite and quartz to a gabbroic or diabasic variety in which quartz is absent and the hornblende has the appearance of being derived from augite.

It is interesting to note that the Italian expedition which ascended Mt. St. Elias in 1897 under the direction of H.R.H. the Duc d'Abruzzi

found the summit of the mountain to consist of diorite, and diorite probably occurs in many of the higher peaks of the range.

Pyroxenite.

Pyroxenite.—A large, coarse-grained, intrusive mass consisting mainly of augite and iron ore cuts the Dezadeash series of the St. Elias range on the Dezadeash river.

Diabase.

Diabase.—This rock occurs at the canyon on Sheep creek and also at the head of Kluane lake.

Dunite.

Dunite.—A small area of dunite was found on Burwash creek. The olivine of this rock is partly altered to serpentine.

Andesite.

Andesite.—Andesites occur principally in connection with the lignite-bearing tertiary areas. A vesicular variety of this rock outcropping on Telluride creek was found to contain small quantities of bitumen.

Rhyolite.

Rhyolite.—Light-coloured rhyolite rocks occur in small areas on Kimberley and Bullion creeks.

Effusive volcanics.

Effusive volcanic rocks.—Large areas covered with successive sheets of lava of various kinds occur in the interior of the St. Elias range. The largest of these, in the district examined, commences near the junction of the Dezadeash and Kaskawulsh rivers, and extends southward for many miles. It has not been outlined, but must cover several hundred square miles. A second large area crosses Duke river valley near the upper forks.

The lava sheets are level or incline at low angles, and are evidently younger than the main mountain-making movements. They are, however, of considerable age, being traversed by wide valleys and having been worn into ridges and peaks closely resembling those in other portions of the range.

The varieties of the effusive rocks collected include dark diabases, gray andesites, white ryholitic-looking rocks, and red, black and gray vesicular lavas. Indurated tuffs and agglomerates occur with the effusives.

Structure.

Very little is known in regard to the structure of the St. Elias range. The general strike of the bedded rocks is nearly magnetic east and west, or parallel to the trend of the range. Local deviations from this direction, due to the numerous intrusive masses, are, however, frequent. The beds are steeply tilted, but are seldom, so far as observed, overturned or broken; they dip in both directions. No evidence of great over-thrust faulting, such as obtains

in the Rocky Mountain range, was noticed. The effect of over-thrust faulting is to reverse the normal sequence of the beds and to place older formations above more recent ones. For instance, in the Rocky mountains the palæozoic limestones of the front ranges often rest on Cretaceous beds. In the St. Elias range, on the other hand, the bordering plains and ridges are underlaid by old schists, while the mountains are built of much younger rocks. It is noteworthy that, notwithstanding the strongly folded condition of the beds in the St. Elias range, the old Kluane schists are nowhere brought to the surface. It is possible that the upheaval of the range and the folding of the beds are due in large measure to the repeated invasions of the district by igneous rocks and not to great general earth movements due to compression, such as produced the Rockies. Normal faulting probably occurred along the base of the range.

Glaciation.

All the lowlands of the districts reported on were buried beneath ice during the glacial period, but there is no evidence that the higher ranges were overridden. The ice poured down from the St. Elias range, the main gathering ground, through every opening in the outer ridges. It moved down northward-sloping valleys, like those of Bullion creek and Slims river, and up southward-sloping valleys, like those of Jarvis river and the Dezadeash. It flooded the great Shakwak valley at the foot of the range to a depth, in places, of probably 3,000 feet, and streamed eastward up the broad valley of the Dezadeash to the low Dezadeash-Tahkini divide, and then down the latter valley to the Lewes. Smaller streams flowed up the steep valleys, incising the southward slope of the Ruby range, and, in some instances, as at the head of Lake creek, crossed this range and descended into the valley of the Aishihik.

Kluane hills.

The Kluane hills, with an elevation of, approximately, 2,650 feet above Kluane lake, and 5,150 feet above the sea, were completely covered with ice, as shown by the presence of rounded foreign boulders and pebbles on the highest points. Ruby range was glaciated up to an elevation of about 5,200 feet above the sea. Below this point the contours are rounded and foreign drift material is always present. Above it the topographic angles are sharper and the slopes and summits are strewn with angular frost-riven fragments derived from the underlying schists.

The deep wide valleys traversing the region north of the St. Elias range are bottomed everywhere with glacial deposits, principally boulder-clays and silts, to a depth, in places, of several hundred feet. The boulder-clay is usually interbanded with stratified gravel beds. It

is confined to the valley flats and bordering terraces, and does not occur on the summits and upper slopes of the ridges.

The boulder-clay is almost always overlaid by heavy beds of white silt and is occasionally interbanded with it. These white silts are precisely similar to the fine glacial material from the Kaskawulsh glacier now being carried away by Slims river and deposited in the upper end of Kluane lake and the lower sluggish part of the river; there is little doubt that they originated in the same way. Kluane lake will eventually, if the present conditions be maintained, become filled up and will be replaced by a silt plain similar to those bordering portions of the upper Lewes, the McMillan, and most of the other rivers draining the glaciated highlands surrounding the Yukon plateau.

Glaciers.

The glaciers of the St. Elias range are now receding, but not very rapidly. Undisturbed moranic groups occur in front of the Kaskawulsh glacier for a distance of at least half a mile, and long lateral moraines, heading in glaciers, border some of the tributaries of Telluride creek. Reasons have been given, on a previous page, for believing that a long lake lately covered the valley of the Dezadeash from a point below its junction with the Kaskawulsh nearly up to the Aishihik river. This lake must have been produced by an ice dam across the valley of the Alsek, and indicates a pronounced advance of the glaciers of the range less than a century ago.

ECONOMIC GEOLOGY.

Gold.

Placer gold has been found in the district in two groups of creeks, one heading in the outer ridges of the St. Elias range, and the other in the Ruby range, situated between Jarvis river and Aishihik river. Ruby creek, Fourth of July creek and McKinley creek are the most important creeks so far discovered in the latter group, and of these Ruby creek is the only one which has produced any considerable quantity of gold.

Ruby creek heads in the summit of Ruby range and flows southward, emptying into the Jarvis river after a course of about nine miles measured along the valley. It is a steep mountain stream with a large volume of water in spring and early summer, but gradually dwindling in size as the snows in the upper regions disappear, and in late summer the flow is reduced to a couple of hundred miners' inches or less. In its lower reaches Ruby creek has its course across the wide drift-filled valley of Jarvis river, and its valley is shallow and cut

in boulder clay. In the upper mountain portion it occupies a great narrow-bottomed depression from three to four thousand feet in depth cut out of the old schists of the Kluane series.

The valley of Ruby creek is floored in the lower part with boulder clay and other drift deposits, and in the central portion with a shallow covering of stream gravels and boulders. In the upper portion the grade is so steep—in places exceeding 400 feet to the mile—that the gravel is often washed away and the bed-rock is exposed.

Ruby creek.

Mining on Ruby creek during the past season was practically confined to the central portion, extending from Claim No. 22 above Discovery to the mouth of Little Ruby creek at Claim No. 34 above Discovery, a distance of about three-quarters of a mile. The wash in this portion consists mainly of flat schist pebbles and angular slabs of the same material, with occasional large granite boulders often several feet in diameter, and a few quartz pebbles and boulders. It is shallow, seldom exceeding ten feet in depth on the claims now being worked, but is irregular in this respect, owing to the rough hummocky character of the bed rock surface on which it rests. Some sluicing was done during the past season on most of the claims between No. 28 above and No. 34 above, and on some of them pay was reported, but no particularly rich gravel was discovered, and the total yield did not exceed a few thousand dollars.

The gold, which is of local origin and is derived from the quartz veins cutting the Kluane schists, is coarse, rough and occasionally crystalline; it is more irregular in size than the Klondike gold, but nuggets have been found weighing nearly half an ounce.

The portion of Ruby creek at present being mined cannot produce any large quantity of gold; the body of gravels is small and has not proved high grade. Further down the valley the conditions are different, and it is possible that considerable bodies of workable gravels may exist under the boulder clay. Several attempts have been made to sink to bed-rock, but without success. Two shafts, one on Claim No. 15 above, and the other on Discovery Claim, have been sunk to depths of seventy feet and forty feet respectively, without reaching bed-rock. There is, of course, no certainty of finding gold under the boulder clay, as the stream gravels may have been swept away during the glacial period, but the chances of important discoveries are favourable and seem to warrant the expense of a deep shaft. Drifts across the valley from the foot of the shaft would be necessary for a fair test,

for it is unlikely that the present stream follows the exact course of the pre-glacial one. The valley is, however, narrow and the deviation cannot be great.

There is little chance of finding pay-gravels in the Ruby creek valley below the point at which the stream leaves the mountains, the present course of Ruby creek across the wide valley of Jarvis river being probably entirely different from the pre-glacial one.

Fourth of July creek.

Fourth of July creek is practically a continuation of Jarvis river. It is a much larger stream than Ruby creek, its flowage in early summer amounting to several thousand miners' inches, and it differs from the latter in dividing up, after entering the mountains, into several branches. It has cut a great valley back into the Ruby range much larger than the Ruby creek valley, and the various branches also occupy great rounded depressions sunk deep into the southern slope of the range.

The gravels in Fourth of July creek are similar to those in Ruby creek. The valley is floored with boulder clay up to a point about three quarters of a mile below the mouth of Snyder creek, where it disappears. Farther up, the wash consists of coarse angular and sub-angular fragments of schist with some quartz and occasional boulders of granite. Above Snyder creek, the wash is shallow and bedrock is often exposed. The proportion of quartz-pebbles and boulders in the wash is greater than in the Ruby creek gravels.

Fourth of July creek cuts the schists of the Kluane series through its entire course. The granite boulders were brought into the valley by ice, probably from the south, as the movement of the main ice sheet of the glacial period was northward, or up-stream.

Fourth of July creek and all its tributaries have been staked nearly to their heads, but so far very little effective prospecting work has been done. Colours of gold occur all along the creek: on claim No. 62 above, encouraging prospects are reported from the surface gravels. On claim No. 54 above, a shaft twenty-eight feet in depth has been sunk and pay-gravels are reported to have been found resting on boulder clay. That so small an amount of work has been done is largely due to the excessive cost of mining in this remote region. Freight rates will probably be greatly reduced during the coming season and it is expectəd that the creek will receive a more thorough test. A deep shaft, to test the gravels nnder the boulder clay in the lower part of the valley, but well inside the mountains, is desirable.

McKinley creek, like Ruby creek and Fourth of July, has been staked almost to its head, but very little prospecting has been done on it and no pay-gravels have been discovered. It is a large stream, about equal in size to Fourth of July creek; it enters Jarvis river a few miles above Kloo lake. A large tributary, known as Dixie creek, joins it a couple of miles above its mouth. McKinley creek occupies a wide, basin-shaped valley running for the greater part of its length parallel to the general trend of the Ruby range. Its grade in the longitudinal portion of the valley is low, but after bending to the south tojoin Jarvis river it falls rapidly and, in places, has cut a small canyon in a granite area which it crosses. McKinley creek.

Boulder clay and other glacial deposits extend up McKinley creek for several miles. The depths to bed-rock along the greater portion of the valley must be considerable, and the great width of the valley will necessarily render prospecting for pre-glacial auriferous gravels a difficult and expensive undertaking.

Besides the streams mentioned, coarse gold has been found in the vicinity on Gladstone creek and some of its tributaries, on Marshall creek, a tributary of the Dezadeash, and on Printers creek, a small steep stream tributary to Cultus creek.

AURIFEROUS STREAMS OF THE ST. ELIAS RANGE.

Nearly all the streams flowing from the St. Elias range, in the district examined, carry coarse gold. Considerable work, mostly of a prospecting character, was done during the past season on Bullion, Sheep, Burwash and Kimberley creeks.

Bullion creek is a typical St. Elias range stream. It heads in small glaciers at the summit of the range separating Slims river and Kluane lake from Duke river, and empties into Slims river after a course of about ten miles. It is a large, swift-flowing stream, very variable in its flow, but carrying under ordinary conditions about 2,000 miners' inches of water. Its grade is steep, averaging over 200 feet to the mile, and in flood it assumes a torrential character. Bullion creek.

The valley of Bullion creek is a huge steep-sided gorge, narrow, but widening somewhat towards its mouth and bottomed with bare gravel flats. Midway in its course Bullion creek forces a passage for half a mile through a deep canyon so narrow that at a short distance it looks like a mere cleft in the rocks. This remarkable natural feature is due to a change in the course of the stream at the end of the glacial period. During that period the old valley was filled with

boulder-clay and other glacial deposits to a depth of 1,000 feet. After the ice receded the stream began re-excavating its old channel and has succeeded in cutting through the glacial deposits, and in the lower part of the valley has also cut some distance into the bed-rock beneath. At the canyon the stream was forced to the north by the wash brought down by Metalline creek, which comes in at this point from the south, and in place of clearing out its old channel, as in other portions of the valley, it has sunk a new channel through limestone.

The rocks displayed along Bullion creek valley are exceedingly varied in character. They include green and dark schists, dark slates, gray limestones often weathering red and yellow, white marbles, diorites and a light coloured eruptive rock, probably a rhyolite. Bullion creek valley, as stated above, was filled with glacial wash during the glacial period to a depth of 1,000 feet. The stream has not succeeded in completely cleaning out its old valley, and narrow bands of boulder-clay and glacial gravels still cling to the steep slopes on both sides.

Bullion creek valley is bottomed all along, except in the canyon, with a layer of loose gravel, usually from six to ten feet in thickness. Near the mouth of the valley the depth to bed-rock is somewhat greater. The gravels are coarse and are intermingled with numerous granite boulders, some of huge size. No granite outcrops along the valley, and the boulders must, therefore, have been brought by ice from the interior of the range.

Claims on Bullion creek.

Claims on Bullion creek were being worked or prospected at the time of my visit at intervals from No. 31 above down into the fifties below. The discoverers of the creek are reported to have cleaned up forty ounces, mostly in very coarse gold, as the result of a few days work in some shallow ground at the foot of the canyon. The promise afforded by this find has not been borne out by subsequent experience on the creek. The gravels have been prospected at intervals all along the valley. They carry gold throughout, but have seldom, if ever, proved rich enough to pay wages under conditions at present prevailing in the camp. The distribution of the gold is very irregular. Bunches of gravel carrying good values occur on most of the claims prospected, but the general average yield is low, and seldom exceeds, according to the information obtained, $3 to $5 a day per shovel.

While very little pick and shovel dirt has so far been found on Bullion creek, it is probable that the gravels along the central part of the creek, at least, are rich enough to hydraulic. A company under the name of The Bullion Hydraulic Company was formed during the past season to take over most of the ground below the canyon and

work it by this method. The conditions are favourable, on the whole, as the valley has a good grade and water is abundant, but some trouble will probably be experienced in removing the large boulders and in disposing of the tailings. The experiment is important, as, if successful, it will lead to similar undertakings on other creeks in the district.

The only prominent benches on Bullion creek are the narrow flats marking the upper limits of the boulder clay. Some of the gravels with the boulder clay are reported to be auriferous but have not been worked.

Bullion creek gold is coarse, and is worn much smoother than Ruby creek gold. It occurs mostly in flattened pellets, often of considerable bulk. Some fine gold is also present. Nuggets up to an ounce in weight have been found. The grade is high, averaging about $18 per ounce. Copper nuggets are often found with the gold in the concentrates.

Sheep creek.

Sheep creek, in many respects, is a duplicate of Bullion creek, but is a smaller stream. It heads with Congdon creek, and follows a course nearly parallel with Bullion creek to its junction with Slims river. It is a steep creek, the grade exceeding 300 ft. to the mile. The lower part of the valley has the usual gorge-like character of the smaller valleys of the St. Elias range, and at one point contracts into a rocky canyon, but the upper part traverses an area of soft rocks and opens out into a considerable basin.

The rocks cut by the valley in its lower reaches are similar to those on Bullion creek. In the upper part the valley enters a Tertiary area, and tufts, sandstones, shales, conglomerates and occasional lignite seams are exposed.

Very few claims were being worked on Sheep creek during the past season, and only one, No. 53 above, reported pay values.

Burwash creek.

Burwash creek is situated near the lower end of Kluane lake. It heads in the St. Elias range but has most of its course across an elevated plain which borders the range from Kluane lake to the Donjek river. It heads in glaciers, and in ordinary circumstances is a swift mountain stream from 15 to 20 ft. in width, but,like all glacial streams, its daily and seasonable flow is very variable, depending on the strength of the sun, and in times of flood it becomes a raging torrent. Its grade is less than that of Bullion creek, amounting in the central part of the valley to about 125 ft. per mile.

Burwash creek has cut a deep, trough-like depression in the lower part of the upland across which it flows, and in two places its valley contracts into narrow, rock-walled canyons difficult to penetrate except in low water.

The rocks outcropping along Burwash valley are extraordinarily varied. The varieties noticed, in a distance of about eight miles along the central portion of the valley, included bands of green, striped and dark schists, slates and shales, intruded at frequent intervals by diorite, andesite, rhyolite, diabase and dunite. In addition to these, a copper-stained amygdaloid occurs in the lower canyon. Quartz veins are rare, and few quartz pebbles occur in the wash.

Coarse gold occurs along Burwash creek from the foot of the lower canyon up stream for a distance of eight miles or more, but no very rich ground has so far been found. The miners were greatly hampered during the past season by the excessive cost of supplies, and most of them were obliged to stop work even before the short season ended. On this account very few, if any, claims were fully prospected, and on most of them only useless assessment work was done. Good prospects, and in some instances small amounts of gold, were obtained from several claims, and it is expected that considerable work will be done on the creek during the coming season. The gravels are shallow, are usually rather coarse, and contain numerous large boulders difficult to move. They are not frozen, and seepage water occasions considerable trouble.

A number of narrow, rock-cut benches supporting beds of gravel occur along Burwash valley at different heights above the creek, but usually low. The prospects from a number of these were considered very satisfactory, and, on several, pay gravels were reported and some mining was being done.

Burwash creek gold differs from that of Bullion creek in being much flatter. Most of the larger grains have been worn into smooth thin plates, and bulky nuggets are rare. The largest reported was valued at $3.

Smaller creeks.

Some prospecting was done during the past season on Kimberly, Telluride and Canyon creeks. The last was not visited by the writer. Kimberly creek is a tributary of Jarvis river, from the south-east. It is a steep, swift, glacial stream bordered below with bare gravel flats, but inclosed in a narrow, steep-sided valley above. The gravels in the narrow part of the valley are shallow, loose and coarse. Gold to the value of $100 was reported to have been taken out of Claim No. 14.

above as the result of a few days work. No work was being done on this claim at the time of my visit. Some work was in progress on the claim immediately below, but no pay gravels had been found. Good prospects were reported on Discovery claim and preparations were being made for sluicing. The result of the season's operations is not known. Telluride creek enters Jarvis river immediately opposite Kimberly creek, and is similar to it in general character. No mining has been done on this creek and very little prospecting.

The total production of gold in the Kluane mining district probably did not exceed $20,000 during the past season. The small production cannot be considered satisfactory, but it must be borne in mind that mining in the district is still in its initial stages, and that only a few claims in the whole district were worked during the past season, and these only for short periods. Also, while there was a considerable mining population in the district, most of the miners spent the summer, or a large part of it, in doing assessment work, most of it useless, on several claims, instead of fully testing one claim. Supplies could only be obtained in the district at prices prohibitive, so far as most of the miners were concerned; the freight rates alone from Whitehorse to Kluane lake amounted to thirty cents per pound, and to Burwash creek to over forty cents. Conditions during the coming summer will be more favourable; some of the claims are now roughly equipped and it is expected that, as a result of the construction of a government road into the district, freight rates to Kluane lake will be reduced to about ten cents a pound.

The discovery of coarse gold in so many creeks distributed over such a wide area is a fact of considerable importance even in the unlikely event of no large bodies of gravel rich enough to work by ordinary placer mining being found; portions of some of the creeks, at least, are certain, sooner or later, to be worked by more economical methods.

OTHER MINERALS.

Galena occurs in small quantities in the wash on Bullion creek, but was not found in place. Galena.

Native copper is found with the gold on Bullion, Sheep, Kimberley, Burwash and, in fact, on nearly all the creeks in this portion of the St. Elias range on which any mining has been done. It occurs in rounded nuggets and slabs, the largest seen weighing about a pound and a half, but is nowhere very abundant. A quartz pebble enclosing native copper was found on Bullion creek, indicating a vein- Copper.

origin for a portion at least of the mineral. No native copper has, so far, been found *in situ* in the district. Copper-pyrites occurs in crushed zones on Telluride creek, impregnating a green, amygdaloidal rock in Burwash creek canyon and in small veins on Bullion creek. None of the occurrences seen are of commercial value. A belt of copper-bearing rocks appears to follow the St. Elias range northeast to the International boundary and beyond. It has only been roughly prospected so far, but now that access to the region has become much easier will probably receive more attention.

The lignite-bearing beds on upper Sheep creek, referred to on a previous page, enclose several lignite seams, one of which measured over four feet in thickness. The lignite is of excellent quality and burns freely in an ordinary Yukon box stove. There is no wood along the upper portions of the creek, and lignite is used by the miners for fuel. Lignite also occurs on Kimberley creek, but is not well exposed.

The Duncan Creek Mining District.

(Stewart River, Yukon Territory.)

By Mr. Joseph Keele.

INTRODUCTION.

Introduction.

The earliest record of prospecting in the Duncan creek mining district is mentioned by Mr. Ogilvie in his report on the Yukon district. In the autumn of 1887 Mr. Ogilvie met and conversed with a miner who had spent the summer of that year prospecting and exploring on the Stewart river and some of its tributaries.

From the description of his travels this man, Alexander McDonald by name, appears to have ascended Mayo river to Mayo lake, afterwards going up Duncan and Lightning creek. From the head of Lightning creek he crossed to the Ladue river, down which he floated on a raft for two days, but finding this stream flowing in a northeasterly direction and not south, toward the main branch of the Stewart as he expected, he abandoned the raft and returned to the point of his departure.

After prospecting for a time on the Gustavus mountains, he crossed to the McQuesten river and floated down that river to the Stewart.

Geological Survey of Canada

ROBERT BELL, D.Sc., (Cantab), M.D., LL.D., F.R.S., I.S.O., ACTING DIRECTOR.

1905

Map of a portion of the DUNGAN CREEK MINING DISTRICT YUKON TERRITORY

To accompany Report of
JOSEPH KEELE, B.A.Sc.

Scale
0 5 10 Miles

Discovery points shown thus:

137 136 135

64

Mc Questen Lake
POTATO HILLS 5400'
DAVIDSON MOUNTAINS
Christie Ck
Dublin Gulch
Secret Creek
Haggart Creek
Lynx Creek
North Fork Mc Questen River
South Fork Klondike River
Hoboe Creek
Drapeau Creek
Arizona Ck
Boulder Ck
Johnson Ck
Oliver Ck
Fifty mile Ck
Porcupine Ck
Clear Creek
Left Fork
Mc Questen River
Bear Creek
Lake Monto
McLatchie Ck
Bonanza Ck
Hunker Ck
Bedrock Ck
Trail Creek
Mc Questen River
South Fork
Seattle Creek
Ross Creek
Mc Questen River
Canon
Christal Creek
Canon
Lightning Ck
6400'
Ladue River
GUSTAVUS MOUNTAINS
Canon
Duncan Creek
MT. HINTON 7000'
Rupe River
Granite Creek
MT. HALDANE (LOOKOUT) 6334'
Canon
Williams Ck
Dunedin Creek
Flat
Pareyk Ck
Bonanza Creek
Hewstone Creek
MT. ALBERT 6600'
5600
Bearpaw Ck
Bearpaw Fork
Mud Creek
Wilson Ck
Trail Creek
Road
Trail
Mayo Lake 2050'
Janet Lake
Janet Creek
Williamson Lake
Sheep Ck 5250'
Lodge Ck
6250'
Edwards Creek
Cascade Ck
Nelson Creek
Gordon
RIVER
Mayo
Mayo R.N.W.M.P.
1625'
Grand Canon
Mc Questen R.N.W.M.P.
4750'
Moose Creek
STEWART
Talbot Creek
5200'
Frazer Falls
Talbot L.
Francis L.
Nogold Creek
Reid Lakes
Lake Creek
HUNGRY MT 5772'
Ethel Lake

64

137 136 135

Compiled from surveys made by J.J.McArthur D.T.S. A.J.McPherson D.L.S. and J.Keele B.A.Sc.
Autographed by P.Fréreault.

To accompany Part A. Vol. XVI.
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M Donald gave the name to Mayo lake and river after Mr. Frank one of the partners in the firm of Harper, McQuesten and any.

Early prospecting.

1. the summer of 1898 many hundreds of prospectors made their up the Stewart. They were in search of the rich gold placers ed to exist in the vicinity of that river. For several years fine old had been obtained in paying quantities on the bars of the lower art, and in 1895 coarse gold was found on Haggart creek, a tributary of the McQuesten.

me of the prospectors of 1898 reached the mouth of the McQuesten river, and a few of the more enterprising ascended that stre m to the McQuesten lakes, prospecting on the small creeks as they advanced.

Among the latter were a party of three Swedes; these men appear to have been energetic prospectors. They located on the canyon on Duncan creek, about eight miles from the McQuesten river, after having satisfied themselves that this ground was the best in the neighbourhood. H e they built their cabins and erected a saw-mill, which was worked water power, and for over two years worked undisturbed, making occasional trip to Dawson for supplies. Being in such a remote secluded position they never thought it necessary to stake their ims and record their discovery.

n September 12, 1901, a discovery was staked in the canyon on ncan creek by a party of four prospectors. This discovery was staked during the absence of the Swedes and included the ground already worked by them.

ince the Klondike was made known this is the most important discovery made in the lower Yukon country.

During the year 1902 Duncan creek was staked from its head ters to the Mayo river. Cabins were built on almost every claim d active preparations were made to develop the ground.

A good waggon road was constructed by the Government from the outh of the Mayo river to Duncan creek, a distance of twenty-four les. Road houses were established at several points and two rival wn-sites were located at Mayo river and Gordon landing on the nks of the Stewart river.

A good deal of prospecting was carried on over the surrounding country, an n the spring of 1903 Minto creek was staked. During

the autum of the same year five discoveries were made on the smaller creeks flowing into Mayo lake. Highet creek, a tributary of Minto, was also staked about this time.

Previous surveys.

PREVIOUS SURVEYS.

In 1898 Mr. J. J. McArthur, of the Dominion Topographical Survey, made a reconnaissance survey in this region. He mapped the upper portion of the Stewart river and part of the surrounding country.*

In the summer of 1900 Mr. R. G. McConnell made an examination of the Stewart river as far as Frazer falls.†

In 1903 Mr. A. J. McPherson, D.L.S., of the Dominion Surveys branch at Dawson, was instructed to take the necessary surveys for the purpose of establishing base lines on the various creeks already staked by miners in the district.

Mr. McPherson carried a chain and transit line from Dawson to the east end of Mayo lake by way of the White pass and Yukon winter road, and the Stewart and McQuesten rivers, to which he has connected the base lines of the creeks and by means of which he has fixed the position of the principal mountain peaks.

GEOGRAPHICAL POSITION.

Geographical position.

The Duncan creek mining district includes the Stewart river and its tributaries from Mayo river eastward, the Mayo river and its tributaries, and the north and south branches of the McQuesten river and their tributaries.

The Stewart enters the Yukon river from the east at a distance of fifty-eight miles south of Dawson. The McQuesten and Mayo rivers are two of the principal tributaries of the Stewart. They enter the latter at distances of 100 miles and 170 miles respectively from the Yukon.

Means of access.

The district can be reached by steamboat from Dawson to either Mayo or Gordon landing, on the Stewart river, and thence by waggon road to Duncan creek or Mayo lake, or during winter with dog teams by way of Dominion creek to Clear creek, thence up the Stewart river on the ice.

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* Report of the Department of the Interior, 1899.

† Geol. Sur. Can. Summary Report, 1900.

GENERAL DESCRIPTION.

The portion of the Duncan creek district here described lies east of the Tintina valley and west of the Rocky mountains. Its characteristics are well developed interlocking valley systems, which isolate small mountain groups, and areas of well dissected upland.

Stewart river.

The Stewart river is the master stream of the area. It occupies a valley of mature erosion, the floor of which is a graded flat from two to three miles wide, but which attains a width of almost six miles at its junction with the Mayo and Talbot creek valleys. Innumerable small lakes and ponds are dotted all over these plains.

The next depression of importance is that occupied in turn by the Mayo river and Mayo lake, Rupe river, Ladue river and the south branch of the McQuesten. This valley is blocked with glacial debris in some places, and has a steeper grade than that of the Stewart river. The highest elevation of the floor of this valley is on a wide undulating flat, from which the waters of the Ladue and McQuesten rivers divide. This valley is intersected by another and shorter valley lying northwest and southeast, occupied by Ross creek, some lakes at the head of Mud creek, Janet lake and Janet creek. Another very pronounced depression is that extending in an east and west direction from the Mayo valley to the McQuesten and occupied by Minto creek and lake and Bear creek. A branch of this valley extends in a southwesterly direction to the Stewart river and contains Moose creek.

Mayo lake.

Mayo lake is the largest sheet of water in the district. The main body of the lake is twenty miles long and from one and a half to two and a half miles wide, and lies in an east and west direction. A narrow arm of the lake, twelve miles long, extends to the southeast The northern shores of the lake rise in gradual slopes to the Gustavus mountains. The shores to the southeast of the lake are abrupt and in places cliff-like, while those to the southwest are low and rise gently to ridges which are mostly below timber line.

Rupe river.

Rupe river enters Mayo lake at its eastern extremity. It is a sluggish stream of about 150 feet wide and four or five feet deep. About one and a half miles from the lake it is joined by Edwards creek, a swift stream flowing from the south-west. The lower portion of Rupe river runs through a wide, flat-bottomed valley containing numerous lakes. Following this valley northward Ladue river can be reached by a portage of about seven miles from Rupe river. Ladue river flows in a north-easterly direction and enters the north branch of the Stewart river about 125 miles above Frazer falls.

Nelson creek.

Nelson creek enters Mayo lake at the extremity of the south-east arm. This stream is about seventy-five feet wide and two feet deep, and enters the lake without any perceptible current, but a few miles up the stream the current becomes swift.

The valley of the south arm of the lake extends up Nelson creek, gradually trending in an easterly direction. This valley also extends southward towards the Stewart river. Its bottom is a wide undulating flat, bordered by gravel terraces and contains a number of small lakes at various levels.

Most of the numerous streams that enter Mayo lake from the surrounding hills are short mountain torrents, throwing down considerable debris which they deposit in flabellate deltas extending into the lake. Mayo river, the outlet of the lake, at its western extremity, has cut through a wide gravel bench which previously formed a dam across the valley. This bench extends eastward along the lake shores as far as Keystone creek. Near the mouth of Edmonton creek are beaches raised in successive steps, the highest of which corresponds to the bench at the outlet.

Mayo river.

The Mayo river, meandering through a wide valley, deeply floored with drift materials of various origin, has a fall of about ten feet to a mile. Wide benches rising to a height of 350 feet above the stream border the valley. They are continuous all along the eastern side and have diverted the waters of Janet lake from the Mayo river. About ten miles below Mayo lake, Field creek crosses the Mayo valley through a striking arrangement of eskars, kettle holes and mounds, and all the topographic characteristics of a terminal moraine. The material of the moraine is principally well-rounded pebbles three to six inches in diameter. About two miles below Minto creek the Mayo river in the course of its meandering became superimposed on two rock-spurs projecting from the western slopes. The river has sawn a channel into the rock, thus forming canyons with walls 200 feet high and each about a mile long. The only other exposure of rim rock on the river occurs about a mile below Mayo lake.

The flow of water in the Mayo river was measured by Mr. Beaudette on June 20, 1903, and found to be 124,400 miners' inches (Californian).

Gustavus mountain group.

The Gustavus mountain group is completely surrounded by wide valleys and forms a prominent topographic feature in the district. They are deeply dissected by streams which radiate from them in all directions. The head waters of the streams have worked back into the steeper slopes, leaving sharp edged ridges and peaks of a generally

ruinous appearance. A deep ravine, cut down by Granite and Keystone creeks, divides them into smaller groups. Of the group overlooking Mayo lake, the highest point is Mount Albert, at 6,500 feet above sea level, while Mount Hinton, of the Duncan creek group, is the highest point of all, being about 7,000 feet above sea level. The northward facing slopes are, as a rule, precipitous. The slopes that face the south are less rugged and have easy grades. On the higher levels, in position sheltered from the sunshine, a good deal of snow remains throughout the summer. North-east of the Gustavus mountains, but separated from them by the wide valley of the Ladue river, rise the Davidson mountains, some of whose peaks are as high as Mount Hinton. This group is a spur from the Rocky mountains, whose higher peaks appear in the distance in continuous array, sweeping in a great curve towards the north-west Twenty-two miles west of Mount Hinton and rising from the valley of the McQuesten, is Mount Haldane, a very prominent feature, invisible from many points on account of the wide valleys which lead to and surround it. This mountain is known by the miners as Lookout. Its height is over 6,000 feet above sea level.

The upland areas bordering on the Stewart and Mayo valleys are composed of broad back ridges with curving profile breaking off more or less abruptly towards the valleys. These ridges have an altitude of from 3,500 to 5,000 feet above sea level, but small erosion remnants project from them to a much higher elevation.

GENERAL GEOLOGY.

Rocks of the placer diggings.

The rock bed of the gold placer diggings of the Duncan creek mining district is composed of an essentially schistose series, consisting partly of crushed eruptives and partly of rocks having a sedimentary origin. The schists derived from eruptives occupy the greater area, extending from Nelson creek at the south end of Mayo lake in a westerly direction to the McQuesten river. Their extension east and west of this area has not been determined. They outcrop on the Stewart river near Gordon landing and extend northward to upper Duncan creek and Haggart creek.

These rocks are principally derived from quartz porphyry and vary from a massive and only slightly deformed phase of this rock to a soft, foliated, sericite schist. The freshly fractured rock has a pale yellowish green colour, but becomes a reddish brown when exposed to weathering. The most abundant mineral present is quartz, and a typical schist is composed of thin parallel layers of quartz separated by films of mica, generally sericite. In many cases the quartz layers are not

continuous, but are lens-shaped with thinly drawn out edges. Kidneys of quartz with blunt ends and wrapped with layers of mica-schist are also characteristic of large masses of the rock. These quartz kidneys vary in thickness from one to twelve inches and are arranged parallel to the general direction of foliation in the rock. On weathering a slaty cleavage is most in evidence, but in the massive varieties the jointing is more pronounced and the rock then breaks down in slabs and blocks. Rocks similar to these occur in the Klondike mining district. They are described by Mr. McConnell under the name of the Klondike series.* The Duncan creek rocks will probably be correlated with this series when the field work over the intervening area is completed. To the east of the south arm of Mayo lake, about half a mile from the shore, the rocks just described cut through a series of older rocks which are evidently of sedimentary origin. They now consist of massive and banded quartzite mica-schists and graphitic schists and extend across Mayo lake, forming the eastern portion of the Gustavus mountains and are the bed rock in upper Duncan creek. In this last locality they contain banded crystalline limestones. These rocks have a marked resemblance to a series occurring on Indian river and elsewhere in the Klondike district, which are described by Mr. McConnell under the name of the Nasina series.

This older series are intruded by dark, green-coloured rocks which are mostly actinolite diorites, much decomposed. Around the heads of Ledge and Edmonton creeks these eruptives occur as dikes and stocks, protruding through the schist. They have a well-jointed structure and the surface blocks are all loosened from the mass. Similar eruptives are found invading the schists on the Gustavus mountains, on Lightning creek, on Haggart creek, and in the canyon on Mayo river.

Small masses of gray granite occur on Rupe river near Granite creek at the head of Dublin gulch, and on Rudolph gulch at the head of Highet creek.

Several dikes of biotite andesite cut through ths schists in the vicinity of Bennett, Highet and McLaghan creeks. In the neighbourhood of Mayo lake the general strike of the schist is northwest with a dip to the southwest at an angle of 20 to 40 degrees. On Duncan creek the rocks are nearly horizontal. On Minto creek and its tributaries the strike is variable but has a prevailing direction to the northeast with a dip of from 10 to 40 degrees. In no case was a dip of more than 45 degrees from the horizontal observed.

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* Preliminary Report of the Klondike Gold Fields. R. G. McConnell, B.A.

Very little folding or warping of the rocks was noticed, but indications of normal faulting were occasionally seen.

Glaciation. There is sufficient evidence to show that during the glacial epoch an ice sheet of considerable thickness occupied all the valleys and submerged most of the intervening ridges. It is doubtful if even the highest peaks of the mountain groups were uncovered during the period of its maximum development.

The effect of the glacial action was first to widen the valleys and to disturb and transport the bulk of the loose material, then to generally disarrange the pre-existing drainage system and to profoundly affect the economic conditions. Scarcely any remnants of ancient high level river gravels remain. These have been shifted to lower levels and redistributed along the main valleys. Portions of former river and creek channels of lower level are often concealed beneath the great thickness of this material, and irregularities in bed-rock are frequently due to the gouging action of the ice sheet.

The glacial drift deposits consist of boulder clay, gravels, sand, silt and clays. Their distribution is irregular, and varying conditions have affected their arrangement.

DESCRIPTION OF CREEKS.

Duncan creek. Duncan creek is economically the most important stream in the district. A great deal of development work was done on this creek, and from it was taken the greater part of the gold which the district has produced.

The head waters of this creek have their source among the highest peaks of the Gustavus mountains. These small streams on assembling form upper Duncan creek which flows through a wide valley in a northwesterly direction for a distance of four miles. It passes out of this valley through a narrow canyon and then enters the main valley of Duncan creek where it is joined by Lighting creek. It then runs in a southwesterly direction for nine miles and empties into the Mayo river at a distance of five miles from Mayo lake. Two important tributaries, Parent creek from the east, and Williams creek from the west, enter Duncan creek about five miles from its mouth. The fall from Lightning to Parent creek is about 250 feet, and from Parent creek to the Mayo river the fall is about 450 feet.

Flow of water. The flow of water in Duncan creek, as given by Mr. Beaudette's measurements on June 20, 1903, was 18,250 miners' inches. This was during the stage of high water.

The lower portion of the creek cuts through heavy deposits of gravel, sand and clay, and remnants of benches of these materials still cling to the hillsides to a height of 300 feet above the stream. In the neighbourhood of Williams and Parent creeks these deposits disappear from the valley bottom, and low rock terraces, covered with a thin coating of rolled gravels, are exposed. Above Parent creek the valley is wide and has a deep covering of drift on the bottom. About a mile below Lightning creek the valley becomes contracted and rock benches are exposed for about two miles up stream. The main valley continues in a north-westerly direction to the McQuesten and is occupied by the lower part of Lightning creek and by Christal creek.

About 500 yards from the mouth of Lightning creek upper Duncan creek issues from a narrow canyon. This canyon is nearly one mile long, with an average width of twenty-five feet on the bottom, and walls about 120 feet high. The canyon walls contract towards the lower end, and an almost vertical fall of eighteen feet occurs. The total fall through the canyon is about 350 feet.

Drifts deposits.

The drift deposits which clog the valley of Duncan creek are principally of glacial origin. The frost does not strike down to such great depths here as it does in the Klondike district, so that the lower unfrozen layers of the glacial material afford constant passages for underground water.

The readjustment of the stream during the withdrawal of the ice from the valley is probably the cause of the canyon on upper Duncan creek, the stream being superimposed on a rock bench, through which it has since cut out its channel. The former channel appears to have been on the left limit and to have entered lower Duncan creek above Forty creek. It is now concealed by a thick deposit of gravels and clays. The old creek channel is not uncovered by the present stream at any point, except possibly at the low rock barrier which crosses the valley near Parent creek.

The channel at claims Nos. 124 and 125 below Discovery is new, being cut into a rock bench. The old channel is probably on the right limit, and is now deeply covered by gravels.

Coarse gold.

The discovery of coarse gold was first made in the canyon in the year 1898. The original discoverers worked secretly and never recorded their claims, but are said to have taken out not less than $30,000 during the three succeeding years. In the summer of 1903, the year of greatest activity on the creek, the sum of $30,000 was produced from the canyon claims, and in 1904 the amount produced was $15,000.

The canyon bottom above the falls is now all worked out, as is also a pot hole immediately below the fall. The pot hole, which is about twenty feet in depth, was mined at a considerable loss, no gold being on bedrock and very little in the gravels.

Pot holes.

The conditions under which pot holes are formed are unfavourable for an accumulation of gold. The grinding action consequent on the churning and rotary movements of the loose material brought over by the waterfall tends to wear away and remove the metallic contents which may happen to be detained in the pot hole for any length of time.

The gold in the canyon lies on the bedrock, which is slightly folded and without much dip. Hard bands of quartzite, six to ten inches thick, alternate with soft schists, so that natural riffles are provided in which the gold is accumulated. Lying on bedrock are from one to three feet of boulderets, slates and coarse gravel. Large sized boulders are frequent toward the upper end of the canyon.

Occurence of the gold.

The gold occurs in flattened and rolled particles without quartz, and is evidently the finer portion transported from a pay-streak up stream. The assay value is $16.58 per ounce. About $28 to the shovel per day was the average result on the canyon claims.

A portion of the gravels on the lower benches at the upper end of the canyon has been washed down. These gravels do not contain much gold, but pay is found in the hollows of the underlying rim rock sufficient to afford fair wages. Above the canyon the creek bottom is about fifty feet wide. No proper attempt has been made to locate the pay streak on this ground.

At claim No. 17 above Discovery, or about a quarter of a mile above the canyon, shallow ground with good pay is being worked. Judging by the work done on adjacent ground and by the nature of the surroundings, it appears that the stream at this point is flowing across a rock bench. Overlying the bedrock on this claim are from three to twelve feet of boulders and coarse gravel, with a matrix of blue clay. The gold is found imbedded in the clay, a little above bedrock. It is very coarse, nuggets about the size of Lima beans being often found. The largest piece obtained was found this summer, and was worth $67.50. The nuggets were all worn smooth, and contained no quartz.

Above this point the valley widens out considerably and is floored with a great thickness of gravels and blue clays. Several shafts have been sunk to depths of from sixty to 120 feet without reaching bed rock.

Result of the small claims.

The only result of the difficult and expensive exploitation of lower Duncan creek during the year 1903 was to demonstrate the impossibility of one individual miner working his 250 foot claim. The difficulties met with were mainly the deep mantle of drift which lies on the valley, and the underground water. Many of the shafts were sunk to a depth of over 100 feet, and 130 feet was reached on No. 104 below Discovery without getting to bed rock. The depth alone would not have deterred the miners from further sinking, but in every case they were forced to abandon their shaft on account of the heavy water encountered when certain layers of unfrozen gravels were pierced.

During the summer of 1903 Claims Nos. 53 and 54 below Discovery were grouped. A shaft sunk on 53 at some distance from the creek on the left limit reached bed rock at a depth of ninety-eight feet. In the winter drifting was continued toward the creek, the rock bottom yielding gold in small quantities The water entering the drift during the progress of the work was got rid of by pumping, but the flow increased beyond the capacity of the pump, and the miners were forced to abandon the drift just as good pay was struck. The total amount cleaned up was $1,200.

On Claim 105 below Discovery good pay was obtained on the left limit quite near the creek at a depth of sixteen feet below the surface of a gravel bench. The gold rested in a layer of gravel overlying boulder clay. On the same claim another shaft reached the outer edge of a concealed rock terrace at a depth of forty feet. While drifting from this shaft toward the stream a pay-streak was found in the deeper gravels beyond the rock rim. This was a paying proposition, but had to be abandoned on account of water, no pumps being available. At Claim 124 below Discovery the creek flows between steep rock benches for about the length of four claims. The creek bottom is wide and has a layer of three to twelve feet of small boulders and gravels on the bed rock. The miners have confined the creek to the side of the valley by means of a head dam and trench and a bed rock drain two claims long has been constructed. The bed rock is a soft micaceous schist, dipping against the stream at an angle of about 30 deg. A sufficient area of bed rock has been cleaned up to prove it of very little value, and the undertaking has been unprofitable.

These are the only instances in which gold has been produced on the main creek, and although the value of the ground on bed rock has not been determined, many of the miners who failed on the creek still retain their confidence in it.

The owners of almost all the claims continued to do the annual assessment work necessary to hold the ground, either with the hope of selling out or finding someone to install machinery to test the creek.

Suggestion regarding combination of claims.

The cost of placing the necessary machinery on the ground in such a remote district would be too great an initial expense for the individual holding only a 250 foot claim, especially as the richness of the ground is an unsettled question. A company which could acquire from one to two miles of the creek bottom at a reasonable price would be working on a different basis. One pumping plant of sufficient capacity to dispose of the underground water, or a well timbered bed rock drain, would serve for the whole workings. Diligent prospecting might reveal benches carrying good pay both on rim rock and in the overlying gravels, which, after the creek bottom had been worked out, could be mined by the hydraulic method.

Lightning creek.

Lightning creek carries more water than upper Duncan creek. It heads in the northern slopes of the Gustavus mountains, and flows through what appears to be a continuation of the main Duncan valley. About one mile from its mouth it emerges from a box canyon, somewhat similar to that on Duncan creek. Above the canyon, the creek bottom widens out to a broad flat bordered with high gravel terraces.

In pre-glacial times Lightning creek evidently discharged into the McQuesten river by way of Christal creek. The gravels on the right limit of the creek above the canyon occupy the old channel and contain very little clay. Some of the Lightning creek water still finds its way through them, and, rising to the surface near Christal lake, flows down Christal creek.

The canyon on Lightning creek is difficult to work on account of the great flow of water and the immense blocks of rock which have fallen from the walls. The bed-rock is composed of banded quartzite and quartz-sericite schists shelving with a slight dip across the stream. Its attitude and the nature of its surface is generally unfavourable as a receptacle for gold.

Several shafts have been sunk in the creek bottom both above and below the canyon but without result, work being suspended in every case on account of water.

Claims were staked on Forty pup, Williams and Parent creeks. Some development work was done, but no gold was produced.

Parent creek.

Parent creek has cut a recent channel through a rock bench bordering on Duncan creek, and has formed a short canyon nearly 100 feet

deep. The bed-rock of this canyon has not been tested, although it appears to be under shallow ground. The old channel of Parent creek probably entered Duncan creek about half a mile further up stream than the present one. A shaft has been sunk in the gravels over this old channel, but as it was found to be too deeply buried the work was abandoned.

The rock bench, which rises to about 100 feet above Parent and Duncan creeks, is covered with a layer of gravels with well-rounded pebbles, mixed with clays and sands. They have a rough stratification on top, which suggests former flood plain deposits. These gravels have been tested by several open cuts made through them to bed-rock. No definite information regarding the gold tenor of the gravels could be obtained, the owners being absent, except in the case of one property where the prospects were said to be good enough for hydraulic operations.

Ledge creek.

Ledge creek enters the southeast arm of Mayo lake on the east side at a distance of four miles from the end of the arm. About three-quarters of a mile from the lake the stream emerges with a low fall from a narrow rock gorge. Above the gorge the stream flows through a narrow canyon for a distance of about half a mile. Beyond this point the valley widens out, but still presents a gorge-like aspect. Rim rock is seldom visible on this portion of the stream, being hidden by the loose material which slides at intervals from the hillsides.

Discovery claim is situated immediately above the gorge and occupies the greater portion of the canyon. The bed-rock consists of dark-coloured quartz, mica-schist and graphitic schist, with numerous inclusions of quartz. From six to twelve feet of loose, unfrozen material rest on bed rock. This material consists of boulders of diorite from the heads of the stream, fragments of schist, gravels and clay. The gold has sunk in loose bed rock to a depth of about one foot. It is all coarse, the general run being about the size of dried peas, while nuggets weighing an ounce or more are frequently found. Most of the pellets of gold are coated with hydrated peroxide of iron, which gives them a dark brown colour. This incrustation on the gold is probably due to the decomposition of iron pyrites, small cubes of which are abundant in the bed rock. The assay value of the gold is $16.95 an ounce.

Four men worked during fifty-five days on Discovery claim this summer, their average production being $25 a day each.

Two claims above and two claims below Discovery were also worked this year with good results.

This constitutes practically all the productive ground on the creek. Above and below this portion the depth to bed rock is too great to allow the ground to be worked by open cuts, and underground water interferes with drifting.

As the creek bottom is narrow, there is often great difficulty in obtaining space on which to pile boulders when opening drains and cleaning up bed-rock.

Gold in paying quantities is said to be found on some of the benches. These benches can easily be worked after the creek bottom is exhausted of its pay.

The creek has a steep grade, and the heavy rainfall ensures plenty of water for sluicing all through the season.

Cascade creek.

Cascade creek, which enters the south arm of Mayo lake about two miles south of Ledge creek, is a small mountain torrent descending by a series of rapids through a narrow rock-gorge. The creek bottom is littered with large blocks of rock, which have fallen from the walls of the gorge. The material lying on bed rock is composed of well-rounded boulders of diorite and quartzite, fragments of schists and gravels.

Discovery claim is situated about half a mile from the lake. Work was begun on this claim and a small quantity of gold was obtained, but freshets, resulting from the heavy rains during last July, interfered with mining operations.

Steep creek.

Steep creek enters the south arm of Mayo lake about eight miles from its southern end. It heads in a cirque carved out of the highest portion of the ridge bordering the lake on the west. The productive portion of the creek occupies a deep channel cut through rock-waste and glacial drift containing a good deal of clay. During low water in summer the stream is occupied in removing the material which is constantly creeping down the steep slopes. In time of flood the bottom is scoured out to bed rock in places.

The bed-rock is a compact quartz-sericite schist, weathered to a light brown colour. The dip is down stream at an angle of about 40 deg. This attitude of the bed rock with regard to the stream is preferred by the miners, because once the gold becomes deposited water action cannot remove it except by actually eroding down the rock. Glaciated boulders from various sources, gravels and sands, and a stiff yellowish clay overlie the bed-rock.

Four men were working last July on claim No. 2 above Discovery. Bed-rock was easily accessible, but as it scarcely yielded wages the claim was abandoned. The gold from Steep creek is in small bright coloured particles of great purity. The assay value was $19.57 an ounce. A large quantity of black sand accompanies the gold.

Edmonton creek.

Edmonton creek heads in northward-facing slopes of the same rugged uplands as Ledge creek, but drains the larger area. It enters Mayo lake about two miles from the eastern end. The principal country rock on the creek is a dark-coloured quartzite schist without marked slaty cleavage. Several diorite dikes cutting the schists are also eroded by this stream. The creek bottom is floored with a mass of well rounded boulders and angular blocks of diorite, accompanied by the usual gravel and clays.

During the early part of the summer four men worked on Discovery claim. Operations were commenced by thawing and washing down a frozen gravel bank which overlaid a low rock-bench beside the stream. This work was abandoned in favour of drifting, the latter being more economical. A bed-rock drain was also commenced and other preparations made for next summer's work. The prospects were said to be encouraging.

Keystone creek.

Keystone creek is the largest of this group of small creeks. It heads in the Gustavus mountains and enters Mayo lake about five miles from the outlet. The lower portion of the creek occupies a deep and fairly well developed valley without the gorge-like aspect which characterizes those just described. Rim rock is rarely exposed along the stream. The valley bottom is floored with a thick deposit of boulders and gravels, and considerable loose material clings to the slopes above the creek, near which a few shafts have been put down. Bed rock was not reached in any of the shafts, as the underground water interfered with a continuation of the work. It is doubtful if this creek can be worked by the open-cut method. The benches above the stream are easy of access and may yield good results, but they have not been prospected. The fall of the stream is five feet in 100. No gold was produced on this creek.

Haggart creek.

Haggart creek is one of the principal tributaries of the McQuesten river. It enters the south fork of the latter at a distance of eighty-five miles from the Stewart river. It heads in high ridges near the north fork of the McQuesten, and occupies a very large winding valley with a flat floor. During 1898 several miners worked claims on Haggart creek, and are said to have sunk twelve shafts to bed-rock. From some layers of the gravel good pay was obtained, but very little gold was

found on the bed-rock itself. Underground water caused considerable trouble. Work in this creek is now abandoned.

The bed-rock on Haggart creek is principally a dark-coloured, quartz-mica schist. A diorite dike, cutting the schists, crosses the creek a short distance above Discovery. A highly altered and well mineralized dike, the nature of which has not been determined, also crosses the creek at the mouth of Dublin gulch, north of which the country rock is a white bedded quartzite, apparently of later origin than the schists to the south. These quartzites continue northward to the north fork of the McQuesten. No gold is found in the streams which cross these quartzites.

Dublin gulch, a small tributary of Haggart creek, enters on the left limit about twelve miles from the McQuesten. Work has been carried on here every year since 1898, but only two men were working here during the past summer. They were engaged on Claim 15 above Discovery. The work consisted of washing out the gravels in the valley bottom by means of a small hydraulic plant. Dublin gulch.

The surface gravels are here composed of small granite boulders and angular schist fragments with fine gravels. This is recent stream-wash, and carried fine colours of gold. The depth of this deposit is about six feet. Beneath this surface deposit lie two or three feet of blue clays with angular pebbles, under which is a seam of about a foot thick of fine yellow gravels carrying gold. Below the gravels are from two to three feet of yellowish gravels and clay, evidently of glacial origin, which contain small particles of gold. These glacial clays rest on old creek gravels. No bed rock has been exposed. A trench about 200 feet long and forty feet wide, cut down to the old stream gravels, has been worked out. The yield was small, amounting to about the wages of the country, which are $7 or $8 a day.

The gold on Dublin gulch is fine and of a bright colour. The particles are of a wiry form or in small scales. It is accompanied by a quantity of heavy white sand, consisting of rounded grains of scheelite (tungstate of lime), from which it is difficult to separate the gold. There is also a run of flour-gold which is not saved in the sluice-boxes. It is possible that hydraulic mining could be successfully operated on this stream by a company acquiring a concession to cover the whole creek. There is a large body of the deposits, both on the benches and in the creek bottom. The boulders being generally small, not many of them would require breaking. The creek has a fall of five to eight feet in 100, but the supply of water is scarcely adequate for hydraulic operations on a large scale.

Highet creek.

Highet creek is one of a group of creeks which drain the deeply dissected upland lying between the Mayo and the McQuesten valleys. The headwaters of the creeks on opposing slopes have cut back deeply on the watershed, leaving residual domes, the highest of which stand about 5,500 feet above sea level. The southward-facing slopes of this upland overlook a wide depression containing Minto creek and lake, also the heads of Bear and Moose creeks. The streams issue from narrow gaps in these slopes and flow across the bottom of the depression to Minto creek, which stream enters the Mayo river about ten miles from the Stewart.

Highet creek flows in a southeasterly direction and joius Minto creek about two and a half miles below the lake, its entire length being about seven miles. At two miles from Minto creek the stream issues from a short canyon, the bottom of which is strewn with large blocks of rock fallen from the crumbling and receding walls that rise on both sides to a height of about 250 feet. Above the canyon the creek flows through a narrow valley bordered by clay and gravel terraces which conceal the rim rock on which they rest. The headwaters of the creek are two small mountain-torrents, each carrying about a sluice head of water. The one on the left limit is known as Rudolph gulch. The total fall from this point to Minto creek, a distance of five and a half miles, is 900 feet.

Considerable deposits of drift material adhere to the slopes above Highet creek to a height of 400 feet. These deposits consist of glacial clays and gravels, slide material due to the disintegration of the underlying bed rock and sands and silt. Masses of this material slide at intervals into the creek bottom. The bed rock is mostly composed of a sericite schist resulting from quartz porphyry. The rock is very compact in places and has a well-developed cleavage.

On the upper part of the creek several andesite dikes cut the schists. A small mass of granite has been exposed by erosion at the head of Rudolph gulch. Massive quartz porphyry, only slightly deformed, occurs on the west side of the creek above the canyon.

Although Highet creek was prospected during several seasons and a number of shafts were sunk in the creek bottom, it did not produce gold in paying quantities until this summer. Late in the autumn of 1903 coarse gold was discovered on a rock bench opposite the mouth of Rndolph gulch. No discovery was allowed on account of the proximity of the ground to discovery on Minto creek. The claims number from the mouth of the creek up, none of them being more than 250 feet long.

Work was carried on during the summer of 1904 on the benches on the right limit of four claims between 98 and 110. The lower edges of these benches are from one to twelve feet above the creek. The bed-rock has a hummocky surface which rises with a slight incline toward the hillside. The upper edges have not been uncovered.

Gravels and sands.

The gravels of the benches immediately above bed-rock consist of well-rounded boulders of diorite, quartzite, granite and andesite, and slabs of schist with rounded edges.

Fine gravels and sand mixed with a stiff yellow clay fill the interstices between the larger fragments. Above these gravels is a layer of sandy clay in which fragments of schist from the country rock are embedded. These loose schist fragments have a parallel arrangement probably due to the slow creeping movement with which they descended the hillside.

On claim 105, situated opposite the mouth of Rudolph gulch, a portion of the bench to a distance of seventy feet from the creek and about eighty feet long was worked out last summer. The inner face of the gravels was about twelve feet high. Water for sluicing was carried in a flume from a point a short distance up Rudolph gulch.

As the gravels are frozen, stripping and ground sluicing are done as far as possible in advance of the mining so as to allow thawing action to go on. Fires are built against the gravel faces as the mining progresses.

Disposal of tailings.

On beginning sluicing operations the tailings are allowed to go into the creek bottom. When enough ground has been cleaned up the tailings are piled on the bench.

Mining will be carried on by drifting on bed rock when the deposits toward the upper edges of the benches become too steep.

The gravels for a few feet above bed rock contain gold, but the principal source is from the bed rock crevices. The gold is of a rich, bright colour, the particles as a rule being water worn and smooth, but many of them are angular and wiry and are found adhering to fragments of schist or quartz. The yield of the benches averages about one dollar to the square foot of bed rock.

The loose material which occupies the creek bottom is an unsorted mass of deposits similar to those on the benches. Attempts to reach bed rock in the creek bottom have not been successful, on account of underground water.

The water difficulty.

A shaft which reached bed rock at a depth of twenty feet below the creek was sunk some years ago on claim 66. Gold in paying quantities is said to have been taken from this shaft, but underground water prevented further working. Above this point some of the claims are being grouped, and it is said that an effort will be made next season to work the creek bottom by means of a bed rock drain.

The owner of Claim 56 has a small pump on the ground and intends to sink a number of prospecting shafts across the creek during the winter.

Minto creek.

Discovery claim on Minto creek is situated about one mile below the lake. The valley is comparatively narrow at this locality and a few exposures of rim rock occur. The creek is about twelve feet wide and flows with a sluggish current through this portion of the valley. Gravel terraces at various levels to a height of 350 feet border the valley. Layers of fine silt and sands occur on all the terraces, overlying an unsorted mass of rounded pebbles, fine gravels, sand and clay. The pay ground on Discovery claim consists of the flood plains adjoining the creek. These flood plains or bars, about 1,100 feet wide, have been tested to a depth of about eight feet and found to yield from three to five cents to the pan. Sluicing was done on a portion of the claim last summer, the water supply being taken from McIntyre creek, a small stream on the left limit carrying about a sluice head of water.

The great difficulty in working this ground is to secure a sufficient head of water and enough fall for the disposal of tailings, the elevation of the bars being only ten to fifteen feet above the creek.

While this property could not be worked by the hydraulic method, it seems to be an excellent dredging proposition. The gold occurs principally as small, bright-coloured scales, and appears to be due to the concentration of the surrounding benches.

Good prospects are also obtained on the lower gravel benches which border the lake.

Some shafts have been sunk in the wide valley of Minto creek below Discovery, but failed to reach bed rock. A soft blue mud, which rose in the shaft, was struck at one point at a depth of about 100 feet. All this creek, except the Discovery group of claims, is abandoned.

Some work was done on Eight creek and Jarvis creek, two smal streams on the left limit above Discovery. These streams cut through the high gravel terraces and have concentrated a small supply of gold from them, but not enough to pay wages.

nson creek.

Johnson creek, which heads with Highet, flows in the opposite direction into McQuesten river. This stream was prospected during 1898-9. Several shafts were sunk in the creek bottom, but the usual underground water was encountered and the work was abandoned. It is the intention of some of the miners from Highet to test the benches on this creek during the winter.

Method of mining.

The workable portions of Ledge, Cascade and Steep creeks and the canyon on Duncan are all shallow diggings. The mining is carried on in the primitive manner and with the implements usual to remote and partly developed placer districts. Only the richest and most available ground is worked and the gold is not all saved. The method of mining is as follows :

After ground-sluicing all the upper loose material to within a foot or so of bed rock, a timber dam three or four feet high is built across the creek at the upper end of the claim. A board flume, large enough to carry all the water in the creek, is fitted into the dam. This flume is generally about 200 feet long, but the length depends on the fall of the creek and the depth to bed rock. After the dam and flume are completed, an open cut which serves as a bed rock drain, is made in the creek bottom. This drain is started at such a distance below that its grade will strike bed rock at the lower end of the flume. After ample drainage has been secured for the bed rock, a line of sluice-boxes, connecting with the flume for the water supply, is placed in position. The boxes are fitted with pole riffles to save the gold, and a grade of eight inches is allowed to each box.

Shovelling into the sluice boxes is begun a little above the lower end of the flume and a clearing is made on bed rock on which the tailings are piled. When the clearing is large enough to allow good drainage, it becomes no longer necessary to handle the tailings.

The large boulders are piled along the edge of the stream, those that are too large to handle being broken with sledge hammers or by fire.

Loose fragments of bed rock are put through the sluice boxes and the solid portions are carefully scraped. The boxes are generally cleaned up every three or four days.

Amount of gold produced.

The total amount of gold produced by the Duncan creek mining district during 1904 was estimated at $32,000. Of this amount upper Duncan creek contributed $15,000, Highet creek $10,000, and Ledge creek $7,000.

The gold was practically all produced on nine claims, and represents the work of about thirty men during sixty days. The season was unusually shortened owing to a late spring, heavy and persistent rain in summer and hard frosts which occured early in September.

The total population of miners in the district in 1904 was about eighty. The greater number of these were engaged in doing assessment work on various creeks.

Minerals associated with the gold.

The sluice-boxes on every creek in the district catch grains and pebbles of hematite; they are exceedingly smooth, of a dark brown colour, and many of the pebbles have fragments of red jaspilite adhering to them. Hematite also occurs as a brown sand, from which the gold has to be separated by "blowing."

The miners are apt to apply the name "tinstone" to any dark, heavy and smooth pebbles found in the residues, and that name has been erroneously applied to the hematite pebbles throughout the Duncan creek district.

Native bismuth in small rounded and flattened nuggets is of common occurrence with the gold on Highet creek.

Scheelite in small water-worn nodules of yellowish colour is caught in quantity in the sluice-boxes on Highet creek. The white sand which so often accompanies the gold on Dublin gulch is composed o rounded grains of this mineral.

Other minerals.

Zinc-blende, with which is associated a small quantity of copper pyrites, occurs at Discovery claim on Duncan creek. This ore is exposed on the canyon wall below the falls, and occupies a vertical fracture in the schists. The ore body is about two feet wide and contains traces of gold.

A deposit of stibnite occurs on a small stream flowing into the Stewart river, about five miles above Gordon landing. The ore, which is associated with quartz, is deposited in the fractures of a thrust fault in the schists.

Only a small amount of ore is exposed. It contains gold to the value of $1.40 per ton.

Quartz mining.

An important quartz ledge occurs between the heads of two small streams, known as Twenty pup and Forty pup, which flow into Dublin gulch, a tributary of Haggart creek.

This quartz ledge outcrops on a sloping hillside about 500 feet below a mass of granite, and can be traced along the surface for a distance of 600 feet.

The granite and the quartz lead both cut the country rock, which is a quartz-mica schist, with a strike north-east and a dip toward the west, or down hill, at an angle of about 40 deg.

An open cut, eight feet deep at the upper end, has been made on the surface, exposing the ledge for a width of twelve feet. The extreme width of the ledge is unknown.

The ledge or lead is composed of a number of vertical stringers of quartz, two to four inches wide. Between these stringers are portions of the country rock.

The quartz is impregnated with arsenical pyrites, is much weathered, and portions of its surface have a granular or pitted appearance. Its prevailing colour is green, due to a thin coating of a hydrous-arsenate of ferric iron. Occasional small specks of free gold, which appear to have weathered out from the pyrites, are visible. About 100 feet below the vein, a tunnel has been driven about forty-five feet into the hillside with the intention of tapping the lead, but is still in the country rock. An assay from samples taken over about six feet of the vein exposed in the open cut was made by Mr. Connor, of the Geological Survey, and gave gold to the value of $10 to the ton.

In addition to the claim known as the "North Star," on which the above work was done, eight other claims have been staked on the supposed extension of the ledge.

Several quartz veins occur at the head of Highet creek and on Rudolph gulch. Some of them contain no gold, but a sample from one vein, which carried a little arsenopyrite, yielded gold to the value of $2.60 per ton.

No development work has been done at this locality.

Origin of placer gold.

Our knowledge of the bed rock geology is far too incomplete to afford a sufficient foundation of facts in an inquiry as to the source of the gold.

Diligent search in this district has so far failed to reveal free gold in the quartz or in the country rock, but many quartz veins and stringers have been discovered, which, when assayed, show traces of gold, and often as much as $7 or $8 to the ton, but none of payable

value. Fragments of vein quartz and schists, with particles of gold attached to them, are of frequent occurrence, showing conclusively that they are of vein origin or from impregnated zones.

The wiry and angular appearance of the gold sometimes found in the placer deposits indicates a local source.

On Highet creek and on Dublin gulch it is believed that the gold has its origin in the drainage basins of these streams. On Ledge creek the evidence points the same way, but it is not so conclusive. On Duncan creek the gold has suffered greatly by attrition, is much water-worn, and contains no quartz. But this stream has a large drainage basin with steep grades, and sufficient causes have been at work to reduce the gold to its present state without precluding its local origin.

The fine gold in the benches of wide valleys and in the river bars has its source, in all probability, in an older drainage system, and, having been carried by ice and water in company with gravels, has become finely divided by the time it reached its present destination. It is generally well understood by miners and prospectors that the present concentration of gold in placer deposits is due to the slow wearing and carrying away of immense quantities of bed rock, and that the gold, being indestructible and so much heavier than the material that contained it, slowly accumulated.

Yet surprise is still often expressed that in a country so rich in placer gold no payable quartz is found, or, if quartz leads are found, they are so frequently barren. It should be further understood that the visible amount of bed rock worn away, that is, the amount which has been removed to make the present valleys, did not furnish all the gold, but that hundreds, probably thousands, of feet above that have been eroded. The question of time, which enters into all geological problems, is so profound that to many individuals the source of the gold will forever remain a mystery.

While, hitherto, prospecting has not revealed any payable quartz veins, it is by no means implied that they do not exist. The amount of bed rock exposed to the prospector's view is very small, and only seen at intervals in such places as canyon walls, here and there on streams or on a few ridges above timber line; everywhere else it is concealed beneath the forest covering, the moss and the drift. Another adverse factor is the shortness of the season during which the ground is uncovered by snow and prospecting for quartz can be carried on.

Prospecting.

In consequence of the reverses met with by the miners on lower Duncan creek, and the Tanana stampede of this year, which drew many

of them to Alaskan territory, no prospecting for new creeks was done last summer, and no new discoveries were recorded.

The experience of the miners during the last few years has given them a better knowledge of the conditions peculiar to the country and the kind of ground most likely to afford good pay.

The gold bearing rocks are widely distributed, and a great deal of the country underlain by these rocks is still unprospected.

To work to advantage in this country the prospector should be equipped with at least one year's outfit of provisions and clothing.

Freight from Dawson is delivered by the steamer *Prospector* at Mayo or Gordon, on the Stewart river, at the rate of ten cents a pound. In winter this freight is delivered on the principal creeks at from three to six cents a pound. During summer the rate is fifteen cents to Discovery on Duncan creek or eight cents to Highet creek. There are stores at Mayo and Duncan creek where clothing and provisions may be purchased.

An excellent road with good grades, suitable for either summer or winter travel, was located and partly cut out this summer by Messrs. Gordon and Davidson from Gordon to Duncan creek, a distance of eleven miles. If a bridge were built over the Mayo river at the outlet of Mayo lake this road could be continued at a small cost over the low divide to Duncan creek near Beliveau creek. The distance then to Duncan creek would be only fifteen instead of twenty-four miles by the Mayo road to the same point.

Pack animals can be used to advantage over most of the country. Fodder is plentiful on the creek bottoms and on the benches, and in many localities hay can be stored for winter use.

Loaded boats or canoes can be poled and tracked up the McQuesten river to the McQuesten lakes.

Miners working in the vicinity of any of the lakes can keep themselves supplied with fresh fish without much trouble. These lakes are all stocked with an abundance of salmon trout, whitefish, pike and grayling.

Moose are numerous in various parts of the district, and are depended on as a regular source of food. Moose

In addition to these, but not to be depended on for a regular food supply, are the caribou, brown and black bear, and above all, the mountain sheep.

Forest.

Timber.

An adequate supply of white spruce timber of a size sufficient for mining and building purposes can be obtained almost anywhere in the district.

Especially fine groves of this timber were seen on the alluvial flats of the Stewart river, on the north shore of Mayo lake near the eastern end, at the mouth of Duncan creek and at the mouth of Haggart creek. In these groves are many trees of twenty inches diameter, with individuals as large as thirty inches in diameter.

A few small groves of the black pine (*Pinus Murryana*) were observed on the benches above Mayo river, on the shore of Minto lake, and on the south arm of Mayo lake. The pine is small, none of the trees being more than nine inches in diameter.

Timber line was estimated to be from 4,250 to 4,500 feet above sea level. The balsam fir was the only species represented at that elevation.

Nicola Coal-basin, B.C.

By Dr. R. W. Ells.

Routes to Nicola.

In accordance with instructions, I left Ottawa on June 26 with my assistant Mr. R. A. A. Johnston, of this department. Reaching Kamloops, a day was spent in examining the coal outcrops south of that place, (described by Mr. J. McEvoy in the report of Dr. G. M. Dawson, for 1894, pp. 168-169) and the rocks at the Iron Mask copper mine. On July 1 we proceeded by the stage road to Coutlee, which is situated about one mile west of the forks of the Coldwater and Nicola rivers and near the principal coal outcrops of that district.

Areas examined.

The areas more particularly under examination during the season are known as the Nicola and Quilchena coal-basins. They lie to the south of the Canadian Pacific railway and are at present reached by the stage road from Kamloops to Nicola lake and thence out to the railway again at Spence's Bridge station. The eastern or Quilchena basin is about fifty miles from Kamloops, while the lower or Ten Mile creek basin which is the western extension of the Nicola basin proper, is thirty-six miles from Spence's Bridge.

Rock formations.

The rocks of the area have been described in considerable detail by Dr. G. M. Dawson in his first report on the district, 1877-78, and in his later report, 1894. They are divisible into two groups, volcanic

and sedimentary, the former consisting in large part of diabase, porphyrite, rhyolite, andesite, felsite and agglomerate, with which in places large masses of granite of later date occur. The sedimentaries comprise conglomerate, sandstone and grit, shale and beds of coal which are partly a lignite of fair quality as at Similkameen but in other places pass into the bituminous variety as in the Nicola valley and form important deposits of great value.

Volcanics.

The volcanics occupy the greater part of the country between the line of the Canadian Pfic railway and the Nicola river from Kamloops to Spence's Bridge, and extend for some miles south in the direction of Princeton. In places these rocks display a schistose structure, owing to later crustal movements which have also affected the sandstone and associated coals and produced faults of considerable extent, more especially in those portions near the contact with the volcanic rocks.

Nicola and Coldwater groups,

The name "Nicola series" was given by Dawson to the volcanic portion, and "Coldwater group" to the rocks of the coal basin. To the north and west other volcanics are found which were regarded by Dawson as newer than the rocks of the coal formation, since in places these were found as overflows upon the latter. Of these newer volcanics there is no direct evidence of their presence in the area under discussion.

Elevation.

The elevation of Nicola lake is given by the C.P.R. as 2,127 feet, and that of the valley, in the vicinity of Coutlee, is given by Dawson as about 1,830 feet above sea level. The surrounding hills rise from 1,500 to 2,000 feet and in some cases, as in Iron mountain, to over 3,000 feet above the valley. This mountain, which is situated a short distance south of the forks of the Coldwater and Nicola rivers, is stated to have an elevation by aneroid (Dawson) of 5,280 feet above the sea.

Dr. G. M. Dawson's report.

The statements made in the earlier report (1877-78) as to the age of the volcanic rocks of this district were modified in the later report (1894). Thus, in the map accompanying the first report, part of these rocks are coloured as of Tertiary age and part as Triassic, while in the map accompanying the later report they are all regarded as of Triassic or Lower Jurassic age. Some confusion has resulted from the statement that certain portions of the volcanic rocks are newer than the sedimentaries, and as a consequence several coal companies, acting on the suggestion made in the earlier report, are working on the hypothesis that by boring though the volcanic rocks which surround the Nicola basin they will reach, at some depth, the sandstone and coals

which are there exposed. This contention, however, is not maintained by a careful reading of the text in the reports in question; since, if the volcanics are of Triassic age and the coals and associated strata are of Tertiary age, the latter must of necessity be of later date than the former. Moreover the sandstones are seen to rest upon the volcanics at a number of points around the coal basin.

Limestone. With the rocks of the Nicola series (volcanics) are associated small areas of limestones which are partially altered but which have apparently been deposited upon the volcanics.

Fossils. These contain traces of fossils such as crinoids and shells, but specimens are rare. The general aspect of these, however, would assign them to a position beneath the coal bearing rocks. From this evidence, therefore, it may be assumed that any attempts to reach the body of the Coldwater sandstones and shales by boring through the surrounding volcanics will be fruitless.

Conglomerate. In so far as the rocks of the Nicola (volcanic) formation were studied, they appear to present great similarity in character over a large area, and certainly underlie the sedimentaries throughout their entire extent. This is seen in the composition of the conglomerates and grits which are exposed at intervals around the basin and which contain pebbles of the underlying volcanics; and is also shown by the fact that in several places where contacts with the volcanic rocks are exposed the sedimentaries rest unmistakably on them. Some of these conglomerates, as on the upper Coldwater, have a thickness of several hundreds of feet and form masses of considerable extent. In many places, however, the conglomerates are interstratified with the grits in the lowest exposed portions of the series.

In the course of the work it was found that the possibly productive coal areas of the district could be arranged roughly into four groups, viz. :—

Coal Basins of Nicola valley. 1. That of the Lower Nicola or Ten Mile creek basin, about three miles below Coutlee.

2. That of the Coal gully, containing several seams, one of which has been opened up and mined locally for some years.

3. The Coldwater seam about a mile and a half to the east, where one seam is exposed in two outcrops on the bank of the stream at an interval, between the two exposures, of nearly a fourth of a mile. These two are sometimes known as the Garesche-Green area.

4. The Quilchena basin, which is entirely separated from the others, and distant about ten miles to the east.

The lowest or Ten Mile area has also an outcrop on the south side of the Nicola on what is known as Lindley creek where a thin and badly broken outcrop of coal is exposed on the bank at an elevation of about 500 feet above the river flat.

These areas were all carefully examined, and the extent of the coal bearing rocks mapped. The probable extension and value of the contained coals were estimated as closely as possible.

Supposed coal areas.

Other areas of supposed coal lands have been taken up on the high ground to the west of the Coldwater along the road to McInnis ranch. The rocks in this area are all volcanics of the Nicola series, but upon the surface at several points there are small patches of basal sandstone and grit, practically an arkose. These patches do not, however, represent part of the coal basin proper. Boring operations are now in progress at several points to demonstrate the idea that the coals will be found beneath these volcanic hills.

Drift and denudation.

Great difficulty was found in arriving at accurate conclusions as to the actual extent and value of the several coal seams at different points, owing to the heavy mantle of drift, chiefly boulder clay, with sands and gravel in places, which covers the surface of the country, not only in the level portions of the basin but reaching to the higher elevations of the surrounding hills. The denudation has been very heavy and rock outcrops are few. Thus on the Coldwater river, which rises about thirty miles to the south, and joins the Nicola about one mile and a half east of the village of Coutlee and seven miles west of the foot of Nicola lake, the only outcrops of rock in the coal basin proper are seen at the big bend about two miles above the forks with the Nicola. Above this the banks are often high, but consist entirely of clay. The coal rocks are apparently cut out about two miles further up stream by the converging areas of volcanics on both sides. Thence up river for some miles the rocks on both sides are volcanics, partially diabase, to near the Sixteen-mile post on the road, or eighteen miles from Coldwater forks. Here detached areas of a coarse conglomerate, made up of debris of the underlying volcanics in a grayish gritty paste, form a somewhat prominent ridge with a dip N. 80° E. < 40°-60°, but no shale was observed in connection with this outcrop. These rocks appear on both sides of the river. Some reported shale outcrops were examined in the vicinity, but proved to be dark coloured crushed volcanics. Similar crushed volcanics are seen in a large gully on the west side of the river about a mile above Olsen's house.

Rock of the Coldwater river.

Shale outcrops.

About three miles above this and near King's place at the Eighteen-mile post several exposures of black carbonaceous shales are seen on the

west bank of the Coldwater underlaid by heavy bands of arkose grits with conglomerates, the latter holding large pebbles of the volcanics. In the bed of the stream these rocks contain several black silicified tree stems, and in small seams of coal and shale in the west bank, which have been opened for a short distance by short drifts, plant stems are recognized. The coal seams are of no practical importance, and the so-called sandstones are the basal beds of the formation resting on a small outcrop of volcanic rocks and dipping both to the north and south.

About two miles above this there is another small outcrop of arkose beds resting directly on volcanics with a dip of N. 40° E. $<$ 15°, which show for a few feet only, and also contain silicified tree trunks. The rocks on both sides of the river are volcanics and the sedimentary deposits are very limited and newer. On the hill sides, and even near the summit of the hill ranges, sandstones are reported as occurring in patches sometimes of considerable extent. These were not examined, but they may possibly occur as in the case of similar patches on the mountains north of the Nicola above Coutlee. In some cases the rocks which are called sandstone by the prospectors have proved on examination to be a grayish diabase while the accompanying so-called shales are crushed volcanics. Specimens of reported coal from some points have the aspect of a black impure manganese ore.

Outcrops north of the Nicola.

This occurrence of sedimentary rocks on the mountains has been noticed at a number of points surrounding the Coldwater-Nicola basin. On the hill range between Nicola lake and Coutlee, outcrops of arkose sandstone were observed at several points, and on the south flank, but near the crest of the ridge, three miles west of Nicola lake post-office, small areas of shales associated with dolomitic limestone are found. In these shales fossils such as ammonites and shells occur, and a number of specimens were collected for determination at this office. The associated rocks are apparently older than the sandstones of the coal basin.

Ten Mile creek.

On the Nicola river, between the foot of Nicola lake and the mouth of Ten Mile or Guichon creek, no rock outcrops were seen. The valley is filled entirely with drift material comprising clays, sands and gravel. The thickness of these deposits is very great, since borings to a depth of nearly 300 feet have failed to reach the underlying rock. On the Ten Mile creek no rock outcrops are seen, or but rarely, till we reach the Eight Mile creek, which is about nine miles from the junction of this stream with the Nicola. At a point about midway, however, shales and sandstones of the coal formation are exposed on the east side a few rods from the bank of the stream, and show that the area is probably underlaid throughout this distance by the rocks of the Coldwater form-

ation. On the south side of the Nicola, on Lindley creek, a narrow basin of these rocks already referred to extends up the stream for a mile or more and contains coal which outcrops in a small but irregular seam at an elevation of about 500 feet above the river valley. A short distance above the outcrop the sedimentary rocks are cut off by the volcanics of the mountain against which the former appear to rest. Lindley creek.

The length of the main coal basin of the Nicola-Coldwater area, from the foot of Nicola lake to the south limit on the Coldwater, in a south-west direction, is about ten miles, and the greatest breadth is about three miles. The western portion from the forks of the Coldwater to the volcanics of Ten Mile creek or Lower Nicola is about five miles, with an extension north and south along the creeks of about ten miles. The length of the eastern or Quilchena basin is about seven miles from north to south and the maximum breadth apparently about two and a half miles. Extent of coal basins.

At all these places the sedimentary rocks composing the coal basins rest directly upon the volcanics without indication of any overflows. At several points there are well indicated lines of fracture, which have evidently been caused by movements subsequent to the period of deposition and hardening of the rocks affected, and in several cases the coal seams are broken across abruptly. Faults.

The best natural section of the coal-bearing strata is seen in what is called the Coal gully, a small stream and ravine situated about one mile and a half south of the forks of the Coldwater. Other sections are exposed at the big bend of the Coldwater river, where the coals of that stream outcrop along with a considerable thickness of yellowish gray sandstone; on the upper part of Hamilton creek east of the road crossing from Nicola lake to the Aspen Grove or Princeton road; and in a gully north of Nicola lake post-office, a short distance west of the Mill-stream (also called Clapperton creek). Additional information has been afforded by two boreholes sunk in the Nicola-Coldwater area, one near the Coldwater river and the other about two miles east on the bank of the Nicola river, neither of which, however, reached the base of the formation, but passed through several hundred feet of sandstone and shale with several thin seams of coal in the Coldwater boring, while in the Nicola hole the sandstone was largely replaced by conglomerate. In the former boring a seam of coal was reported at 190 feet, thus:— Section.

Boreholes a-1891-93.

	ft.	in.
Slate	1	6
Coal	3	8
Sandstone, gray	0	6
Coal	1	4
Sandstone	0	8
Coal	0	7
Coal	5	7

In the Nicola boring the seam was struck at 137½ feet and was as follows :—

Coal.

	ft.	in.
Shale	8	6
Coal	0	8
Shale, dark	1	1
Coal	0	6
Slate	0	4
Coal	4	4
Coal	5	6

Borings (1904)

While the aggregate of coal in each of these borings is about the same, it will be noticed that in the Coldwater boring the thick portion of the coal is at the top, while in the Nicola hole it is at the bottom. Whether this feature is due to change in the character of the seam, both representing one and the same, or whether it indicates two distinct seams of practically the same thickness is not determined, and it would be very desirable that other borings should be made in the immediate vicinity to settle the question. Unfortunately, of several borings made during the season of 1904, none succeeded in penetrating the drift, and as the underlying rock was not reached no light was afforded as to the structure of this part of the basin, other than that a considerable area has been largely denuded, owing to the action of the two streams already mentioned.

Around the margin of the coal basin high hills of volcanic rock rise on all sides. On the north between Nicola lake and Coutlee these reach an elevation of over 2,000 feet above the river valley. The rocks consist of diabase, porphyrite and occasional small areas of granite, and contain small showings of copper and iron ore. On the summit of these ridges small isolated patches of sedimentary rocks, which sometimes contain remains of plant stems in a coarse gritty or arkose paste, are occasionally seen.

Limestone.

They indicate that the volume of these sediments was at one time very great and that the areas which occur along the Nicola and Coldwater rivers now represent the portion remaining from the erosion of many hundreds of feet of sediments which at one time probably filled the valley. On the road over the hills to the west of the Coldwater in the direction of McInnis ranch similar patches of arkose rock are found, as also small areas of limestones which rest on the volcanics. On the road south east to Princeton the limestones also outcrop at the Nine-mile post which is the highest point in this direction. These are similar to the limestones described by Dr. Dawson as occurring on the ridges east of Quilchena creek. They contain obscure forms of fossils, and the rock is somewhat shattered though not changed to a crystalline limestone.

Geological Survey of Canada

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1905

Explanation of Colours and signs

Triassic

Volcanic

Tertiary

Coal measures

Dip and strike

Boreholes

Coal seams

Fault

Naik Indian Reserve

Tp. No 91

Tp. No 90

Tp. No 93

Tp. No 95

Indian Reserve

Commonage Reserve

INDEX MAP

Showing Location of

NICOLA VALLEY COAL BASINS

Scale 8 miles to 1 inch

Drawn for photo-lithography by G.E. Prud'homme

To accompany Part A of Vol XVI

No. 890

Price 10cts

GEOLOGICAL MAP of the COAL BASINS of

QUILCHENA CREEK, COLDWATER RIVER, COAL GULLY and TENMILE CREEK,

NICOLA VALLEY, YALE DIST. B.C.

To illustrate Report of

R.W. ELLS, LL.D.,

1904

Scale 1 mile to 1 inch.

Copper.

The volcanic rocks of the district contain small deposits of copper and iron ores at many points. Opposite Coutlee several openings have been made in the face of the hill to the south, but the quantity of either mineral in this area appears to be insignificant. Two principal areas, however, exist which are known as the Aspen Grove camp and the Aberdeen. The former is on the road to Princeton and is about twenty miles south-east of Coutlee, the other is on the west side of the TenMile creek about ten miles from the post road to Lower Nicola. The ores and associated rocks have been carefully examined, principally by Mr. R. A. A. Johnston, and will be described later. On the summit of the range north-east of Coutlee a small deposit of specular ore was opened several years ago but found to be irregular and of but small extent. On the summit of Iron mountain also small irregular veins of similar ore were observed, but the observed quantity did not appear to be of economic importance. A small and irregular deposit was also seen on the north flank of the hill south of Coutlee. The ore is specular but the occurrence is unimportant. This seems to be the principal variety of iron ore seen in the district.

THE COAL GULLY ROCKS.

(Garesche-Green area.)

The coal gully section.

The most interesting series of outcrops in the Nicola basin is found in what is called the Coal gully, a ragged ravine which cuts the face of the hills west of the Coldwater and about a mile south of the forks with the Nicola. The rise of the hill is steep, the elevation at the top of the main gully, in a distance of 35 chains, being 400 feet above its mouth on the flat area west of the river, while, in the next 35 chains, to the contact with the volcanics there is a further rise of about 350 feet. A small side gully comes in from the west at the mouth of the main gully, and on both of these the rocks are well exposed.

Four coal seams exposed.

On the Coal gully proper four coal seams are displayed, with interstratified beds of grayish sandstone and shale, with some conglomerate. On the side gully there is a contact of the shale with the volcanics ten chains south-west of the junction with the main gully, the rocks in this portion being principally shales, gray, brown or black and carbonaceous.

The section given by Dr. Dawson in his report for 1877-78, pp 124-125, of the rocks of the main Coal gully is as follows, beginning at the upper end of the ravine.

Section by Dr. G.M.Dawson.

	ft.	in.
Soft yellowish sandstone in thin beds	32	0
Coal, laminated, rather soft	15	4
Sandstone, rather soft with some shale	89	0
Coal	5	4
Sandstone, with a considerable thickness of shale at the base	141	0
Coal, about	3	0
Sandstone, generally in thin beds	136	0
Coal, about	2	5

This gully was examined during the past season and a survey was made from the mouth at the junction of the small side gully to the contact with the volcanics. This section may be divided into two parts, of which the upper, from the top of the main ravine to the contact of the grits with the underlying rocks, shows no coal.

At the upper part near this contact the outcrops of the coal formation consist of grayish grits and fine conglomerate which dip N. 4° E. < 65°. These sweep round in a few yards at the small stream and dip N. 40° E. same angle. The actual contact with the diabase is not seen here, there being a concealed interval of about fifty yards.

Rocks of the upper section.

On the stream in the gully flaggy yellcwish-gray sandstones dip like the last and extend down stream for seven chains. Here the gully runs out on the flat, but ten chains to the northeast the gully again begins and has a depth of about eight feet, in which a small section of shales and sandstones is exposed. The upper part of this section shows fine-grained grits and conglomerate, dip S. < 35°. At fifteen paces the angle increases to 55°-60°, and at twenty paces more the dip in carbonaceous shales is S. 12° W. < 35°. At fifteen paces further, grits and fine conglomerates dip S. 38° W. < 40° indicating a syncline in this portion of the section. Below this the gully runs out on a flat and no outcrops are seen to the head of the main gully about fifteen chains north. The structure of the upper portion is therefore synclinal and of the other portion to the head of the main gully probably anticlinal. The descent of this part of the section is, by aneroid, 320 feet.

The lower section.

The second or main gully has a length of about thirty five chains in a nearly north direction. It is rough and deep, with abrupt walls cut in part through rock and in part through boulder clay. In this section coal is seen at six points, but of these probably the three lowest outcrops are on the same seam. From notes of the survey the following descriptions may be given.

Section on Coal gully.

The lowest part of the gully for a distance of fifteen chains from the mouth rises quickly, displaying, for the most part, yellowish-gray grits and sandstone with some bands of fine conglomerate, showing in places

much false bedding. The dip varies considerably, and ranges from S. 80° E. < 12° at the lower part through N., to N. 60° W. < 15°-20°, S. 70° W. and N. 20° W. < 15° to the outcrop of the first coal. An anticline is apparent in the lower portion, the beds on the west side of the creek dipping S.W. < 12°-20°. While the dips are generally low, the beds are somewhat disturbed.

Faulted coal seam.

Thirteen chains south of the mouth of the gully the first outcrop of coal is seen on the west side about forty paces distant from the brook. An opening made here shows the presence of a fault which cuts off the coal sharply at this place, with a direction of about N. 30° W., the western wall being sharply defined and consisting of grayish grit. The coal at the east of the fault dips N. 60° E. < 13°. The beds in the upper part of the hole are somewhat crushed. The elevation of this place is about 200 feet above the mouth of the gully.

On the east side the same bed has been opened up by a drift driven along the coal to a distance of eighty-five feet, starting at about fifteen feet above the bed of the brook. A section of the coal, as measured in the tunnel, gives :

Coal seam No. 1.

Sandstone forming the slope of the hill above :—

	ft.	in.
Coal	5	0
Shale parting	1	6
Coal	13	6

Tunnel in coal.

The dip varies considerably. A short distance in the tunnel, where a small side drift has been made to the south, the dip of the coal, which here has a shale parting of two and a half feet, appears to be N. 70° E. < 15° and S. 80° E. < 15°, showing a low fold. These outer beds may, however, be somewhat crushed, as they form the eastern slope of the gully. The coal at the entrance to the drift is also crushed. Below this coal there appears to be about 175 feet of the grayish sandstone. At the inner end of the tunnel the dip of the coal as nearly as could be ascertained is N. 70° E. < 10°, and the drift cuts obliquely across the coal bed starting from the bottom, and at the inner end reaching the roof. The coal itself appears to be of good quality, yielding large blocks, and has been mined for several years for local consumption. Its extension eastward cannot be traced at the surface, but it probably underlies the hill to the east, which we may call Coal Gully hill. It appears to be the lowest seam in this area, and should underlie to the north-east the flat west of the Coldwater unless it has been removed by denudation, a point which can only be proved by boring in that direction.

Anticlinal structure.

On the west side of the gully the coal outcrop at the fault apparently represents the west side of an anticline, which extends a few degrees east of south along the lower part of the ravine, the opposing south-west dip being seen at several points. A third outcrop, three and a half chains south of the tunnel on the east bank, may represent a still further extension of the same seam. The dips along this part of the section show considerable divergence, and may represent additional faults or a disturbed anticline.

About eight chains south of the tunnel another seam outcrops on the east side of the gully. The roof appears to be of shale and shaly sandstone and the outcrop as measured gave at the top :—

Coal seam No. 2.

	ft.	in.
Coal	5	5
Shale	4	0
Coal	3	4
Shale		

This may be styled Seam No. 2.

Owing to the bed of this stream and the sides of the gully being much encumbered from the sliding down of the banks, the exact measurements of these seams are difficult to determine in some places. The dip of coal No. 2 appears to be south-east $< 15°$-$20°$, and a short distance above, on the brook, the overlying shales dip south $< 15°$, showing a sharp change in direction, which may indicate the further extension of the anticline noted on the lower part. Some exploratory work has been done on this seam, but the sides have fallen in, and but little can be ascertained as to the exact nature.

Ceal seam No. 3.

Above this point the course of the gully inclines to the south-east, and four chains further there is another outcrop of coal on the east bank which appears to measure 17 to 18 feet, capped by gray, marly shales with a dip of S. 55° E. $< 20.°$ This may represent the upper seam of Dawson's section which he gives as 15 feet 5 inches, underlaid by sandstone. Of the details of this seam and its extension nothing can be said, very little work having been done at this place. It may be styled seam No. 3.

Coal seam No. 4.

Further south, near the head of the main gully, a fourth seam is exposed on the east side with thin bedded sandstone, showing a thickness at the outcrop of about three feet, the lower part being concealed in the bed of the stream. No work has been done at this place, and it is apparently not included in Dawson's section. This part of the gully is shallow and may not have been excavated at the time of his

visit. The dip of the seam appears to be slightly to the north of east, and the sandstone a short distance below dips N. E. $<20°$. It is possible that a small outcrop along the road to the south-east may represent the extension of this seam, which may be styled seam No. 4.

Measures concealed.

The structure west of the head of the gully, in the direction of the section exposed in the upper portion, is probably an anticline, and if seams occur on the west side they are concealed by drift. Without boring or heavy trenching no definite information can be given as to such extension, and it is possible that in this area the several seams described on the lower portion may be cut out by faults which apparently occur near the contact of these rocks with the volcanics along the west border of the basin.

Outcrops on Coal gully hill.

The elevation of the crest of Coal gully hill east of this ravine is not far from 450 to 500 feet above the flat area at the base to the north, and as all the seams in the ravine dip to the east or possibly north-east, they should underlie the hill unless affected by faults. The presence of large outcrops of the sandstone on the east flank of the hill, a short distance west of the road to McInnis ranch, with a dip of N. 4° E. $<60°$, indicates a possible disturbance of this sort, but as there are no intermediate outcrops in this direction the structure must be conjectural. Twenty-five chains south of this last exposure of sandstone, and on the side of the road, is the small outcrop to which reference has already been made. A good bore hole sunk on the crest of this hill is very desirable, but the scarcity of water at present renders such work a difficult matter.

Western limit of coal basin.

The western limit of this basin has been fairly well outlined by the contacts near the mouth of the Coal gully and by the sandstone ridge on the road near the head of the upper section. The land in the intermediate space is high, and the extent of the coal rocks in this portion must be limited. To the north of the mouth of the gully the volcanics come to the line of road from the forks of the Coldwater to this point, whence the range of the hills trends to the west and keeps along the south side of the Nicola to Lindley creek and on to Ten Mile creek on the north side. On the small side-gully already mentioned, near the mouth of Coal gully, the excavations show the actual contact at a point ten chains south-west. The basal beds of the sedimentaries at this contact are made up, for a few yards, of the volcanic debris passing upward into shales, gray, brown and black, and quite carbonaceous in places. The dip is north-east at angles of 10 to 20 degrees, and at two chains from the contact there is a marked disturbance in these rocks, probably indicating the continuation of the fault seen in the coal seam to the south. Below this the shales are grayish

Contact of volcanics.

and dark coloured as far as a small pit sunk during the past summer to a depth of twenty-three feet, the dip of the shales at the bottom being N. 55° E. <35. These shales contain plant stems, ferns and thin irregular patches of coaly matter. There is an apparent upthrow from the north-east at this place.

Coldwater hill.

The structure of another hill eastward of Coal gully hill which we have styled Coldwater hill, since it terminates on the Coldwater river, can only be inferred from the few outcrops of sandstone which show on the north and east slopes, and from those seen along the bank of the stream in which the Coldwater coal-seam is exposed.

This hill has an elevation of about 350 feet above the river flat. It is quite steep on the north and east, but slopes to the south for about half a mile to the Coldwater river. In this part no rock exposures are seen.

Coal outcrops in Coldwater river.

On the north side the rock outcrops are all of the yellowish sandstone like that at the mouth of the Coal gully, with fine conglomerate bands. The dips vary from N. 60° E. to N. 30° W. <15°-25°, showing a shallow syncline in the north-east part. Along the banks of the Coldwater, from near the line of Blair's lot southward for about forty-five chains, these sandstones are almost continuously exposed and form a bluff from 20 to 30 feet high. In this distance two outcrops of coal are exposed, which probably represent portions of the same seam which here shows a shallow synclinal structure. The dip at the southern end of the section is to the north-east at an angle of 25 or 30 degrees and at the other outcrop the dip is S. 61° E. <15°. The south outcrop has been described by Dr. Dawson (report, 1877-78, pp. 123-124 B.) as follows :—

Section of coal seam.

	ft.	in.
1. Sandstone	0	0
2. Shale	0	10
3. Coal, good with occasional silicified stumps somewhat laminated, cleat in two directions	4	0
4. Sand, not continuous	0	0¼
5. Coal, weathered but probably good quality	0	9
6. Soft sandstone	0	0½
7. Coal	0	6
8. Soft gray sandstone, 6 inches to	0	7
9. Coal	1	4½
10. Coal, soft	0	2
11. Coal, shaly	0	9½
12. Hard fine-grained sandst. gray, with some obscure plant impressions, variable but generally about	0	4
13. Coal, laminated	0	3½
14. Shale with obscure plants and remains of insects	0	9
15. Sandstone	0	0
	10	5¼

The supposed repetition of this seam is found at the foot of the sandstone bluff about nineteen chains distant on a bearing N. 20° W. mag. At this place the coals and sandstone have changed their dips to the south-east, showing the presence of a shallow syncline facing to the east. The thickness of this outcrop as given by Dr. Dawson is as follows :—

	ft.	in.	
1. Sandstone at top, at least	10	0	Section on Coldwater lower outcrop. G.M.Dawson.
2. Gray shale	2	0	
3. Coal	1	5	
4. Coal with shaly partings	1	6	
5. Coal	2	0	
6. Soft brown shale	0	1	
7. Yellowish sandy shale	0	8½	
8. Coal with occasional thin lenticular shaly partings	0	11	
9. Shale	0	6	
10. Coal	0	8	
11. Coal with about a third shaly partings	0	11	
12. Fine-grained gray sandstone, equivalent to No. 12 in former section, the insect bed being absent, about	0	4	
13. Yellowish sandstone, rather soft, at least	10	0	
	31	0½	

While there are some minor points of difference in the character of these sections there is but little doubt that they represent the same seam. At the time of our visit the lower outcrop on the stream was inaccessible as the opening was filled in with river wash. Portions of the upper opening were also hidden, but at one point an entrance was effected and a drift was followed to the end. In this drift the dip of the coals at one place was found to be N. 10° E. $<28°$ but the seam appeared to be somewhat crushed as if by the weight of the overlying sandstone. The length of the drift is about fifty feet, and the total thickness of coal was nearly eight feet.

	ft.	in.	
Sandstone roof			Section of upper seam, 1904.
Coal with shaly and sandy partings	5	6	
Coal	2	0	
Shaly sandstone	1	0	
Coal	1	0	
Sandstone floor			
	9	6	

At the head of the tunnel the dip is apparently N. 55° E. $<30°$, and on the south side of the excavation there appears to be a roll making the dip on that side S. 20° E. As the interior of the drift was not cleared out the exact measurements could not be taken. A few hundred tons are removed during the winter and with the spring floods the workings are nearly filled in with wash from the Coldwater, the openings being but little above the level of the stream.

Bore-hole, 1891.

The structure of the rocks at this place appears to present the following features:—The syncline along the river bank at the big bend is suddenly changed to an anticline a few rods to the north of the lower outcrop of coal. The dip changes from S.E. to N. 30° W., so that the outcrop of this coal seam should follow along the north side of the Coldwater hill, and might be supposed to underlie the area in G. Blair's lot, No. 172. In support of this view a bore-hole, put down in 1891 near the bank of the Coldwater and at a distance of about thirty-five chains N.W. from the lower coal outcrop, passed through what is probably the same seam at a depth of 195 feet. The section of the coals in this boring, taken from the log, is :—

Coal seams.

	ft.	in.
Drift	55	0
Shales and sandstone	135	0
Coal	3	8
Sandstone parting	0	6
Coal	1	4
Sandstone parting	0	8
Coal	0	7
Coal	5	7
Sandstone and shale	15	6
Coal	1	5

Below this the hole was carried down to a total depth of 600 feet, and showed underlying coal seams as follows :—

	ft.	in.
Coal, at 269 feet	0	10
Coal, at 338 feet	1	5
Coal, at 449 feet	0	7
Coal, at 456 feet	0	6
Coal and shale at 588 feet	1	7

The boring ended in sandstone and shale.

It will be seen that it is practically impossible to correlate the Coldwater seam with those at the Coal gully, unless indeed the thin lower seams of the bore hole represent the thick seams in the lower part of the gully greatly reduced. In this case the seam worked on the Coldwater might represent the highest or No. 4 of the gully section, and the seams on the Coldwater area would be repeated by faulting which has thrown the eastern portion of the section upward.

To the eastward no outcrop of the coal-bearing rocks is visible at any point in the Nicola valley, with the exception of a small section exposed on the upper part of Hamilton creek, just above the road from Nicola post-office to the road leading to Aspen Grove and Princeton.

Bore-hole 1892-93.

A bore-hole was put down in 1892-93 near the bank of the Nicola river at a point a mile and a half north-east of the outcrop on the Coldwater or about one mile east of the boring just described. In this hole, which reached a depth of 562 feet, coal was struck at a depth of 137½ feet, the section as given in the log being. :—

	ft.	in.	
Drift clay and sand	80	0	
Sandstone and shale	57	6	Coal seams.
Coal	0	8	
Shale, dark	1	1	
Coal	0	6	
Shale	0	4	
Coal	4	4	
Coal	5	6	

Beneath this, coal was struck at several points, thus,

	ft.	in;
Coal at 166½ feet	1	11
Coal at 219 feet	0	5
Coal at 334½ feet	0	7

with sandstone, shale and conglomerate to the bottom of the hole, which did not penetrate the measures.

Difference in character of coal seams.

From a comparison of these two borings it will be seen that the character of the large seam struck varies widely. Thus in that near the Coldwater the thickest portion (3 ft. 8 in.) is in the upper layer, while in the Nicola boring the thickest bed (4 ft. 4 in) is at the base. Unless the character of the seam has entirely changed in the distance of a mile the correlation of these two seams can be made with difficulty. The character of the lower seams also presents considerable divergence, but this may be expected in coals of this horizon, and it is quite possible that the different bands of the principal coal seam have materially and locally changed. It is to be regretted that these holes were not continued to the contact of the coal measures with the underlying volcanics.

In comparing the nature of the sediments passed through there is also a manifest difference in the two borings. Thus in the Coldwater hole the thickness of sandstone is given as 440 ft., and of shale 77 feet, with one foot of conglomerate. In the Nicola hole the sandstone totals 276 feet, the shale 66 feet and conglomerate 125 feet. This would indicate a great difference in local deposition of the sediments at the two places, provided the logs have been correctly kept.

Samples of coal from the Coal gully (tunnel seam) and from the upper outcrop of the Coldwater were secured as also from the Quilchena

basin and have been analyzed in this department, the results being as follows :—

Analyses of coal.

G. S. L. No. 272

1904.

Mem. re certain coals collected by Dr R. W. Ells : —

Coal gully.

(*a*) From tunnel on lower seam of Coal Gully—

Water	3·04
Volatile combustible matter	37·18
Fixed carbon	52·05
Ash (reddish-white)	7·73
	100·00

Coke, per cent 59·78. Yields a compact firm, coherent coke.

Quilchena.

(*b*) From lot 1267. On creek running into Quilchena creek—

Water	6·95
Volatile combustible matter	37·21
Fixed carbon	47·95
Ash (pale reddish-brown)	7·89
	100·00

Coke, per cent 55·84. Yields a firm, coherent coke.

Coldwater river.

(*c*) From southerly outcrop of seam on Coldwater river--

Water	3·17
Volatile combustible matter	35·73
Fixed carbon	55·25
Ash (light reddish-brown)	5·85
	100·00

Coke, per cent 61·10. Yields a firm, coherent coke.

(*d*) From the Coldwater river, near its junction with the Nicola, near Coutlee. Lower tunnel. C. H. Keefer, Esq.—

Water	1·37
Volatile combustible matter	38·24
Fixed carbon	54·25
Ash (light reddish-brown)	6·14
	100·00

Coke, per cent 60·39. Yields a compact, firm, coherent coke.

Analyses by fast coking understood.

(Signed) G. C. H.

Hamilton creek.

Hamilton creek, which flows from a chain of small lakes lying to the north of the Princeton road, and nearly three miles east from the fork of the road from Nicola with that from Coutlee, furnishes a small section of coal-bearing rocks. To the north of the Lundbaum lakes at the head of the creek, there is a high hill known as Sugarloaf or Lundbaum head, composed of diabase and porphyrite with some granite. Along the course of the creek, about the lakes, and for some distance below them, these rocks are well exposed. They continue down stream to within a mile of the Nicola road, where they form the bed of the stream and are in part covered with a heavy deposit of clay.

Section on Hamilton creek.

The first rock seen on this creek upon the eruptives is a yellowish-gray sandstone of the usual type, with a dip of S. 35° W. $<25°$, but between this outcrop and the volcanics there is a space of about 500 yards, the banks being of clay and gravel. A fault cuts across the creek near the sandstone outcrop in a direction N. 25° W. The sandstone is interstratified with shale, in places carbonaceous, and these outcrops extend down stream for about 400 yards with the same dip, though the angle increases to forty degrees. Indications of faults are seen at several points. Below this the dip swings to the south and the sandstones are in part replaced by carbonaceous shales. About midway on the line of section the dip is South $<$ 30°-40°, and from this to the end where the ravine meets the plain near the road-crossing, the dip continues to change regularly till it reaches, in the lowest exposures on the stream, S. 75° E. to East $<$ 25°. The character of the formation remains practically the same throughout. No coal seams were observed, but the trunks of trees were seen near the lower end of the outcrops, and in a boring sunk at this part a seam of a few inches of coal was reported. The log of this boring has not been secured. The stream is very hard to traverse, being much choked with drift-wood and boulders along the greater portion of the line of section.

Synclinal structure.

From the dips it would appear that these rocks lie in a shallow syncline dipping to the south-west in the direction of the Coldwater. The thickness of the formation is apparently not very great, and it is bounded on the north by a ridge of eruptives consisting of diabase and tuffaceous rocks which lie in alternating layers and form a bold escarpment facing on the Nicola river for several miles. The Hamilton creek area is therefore a small side basin extending north-easterly from the Coldwater area, and with a maximum breadth of about one mile, terminating north-eastward at about two miles east of the road crossing from Nicola lake.

Borings are now being made in the volcanic rocks on the upper part of this creek.

Section north of Nicola post-office.

The valley of the Nicola shows no rock outcrops from near the foot of the lake for some miles, the drift deposits along its course being very heavy. To the north-west of Nicola post-office a road which extends up the Millstream, or as it is sometimes styled Clapperton creek, traverses a flat area for nearly three fourths of a mile till it meets a ridge of volcanic rocks. On the Millstream, the lower part, for half a mile or more above the post-road crossing, shows no ledges, but at this distance there is a low ridge of brown feldspathic and diabase rock which shows on both sides of the stream. Two hundred yards above

this there is a small outcrop of the basal beds, (arkose) of the sedimentary rocks on the west side. No exposure of the grits or shales is seen in this area, and above to the old mill, four miles from the mouth, nothing was seen but volcanics of the usual aspect. In places traces of copper are visible.

Volcanics north of Nicola road.

A traverse was made across the hills south-west from this place and showed them to be entirely of volcanic rock. In a gully which cuts across the lower part of these hills in rear of Nicola post-office these rocks are well exposed for a short distance. They consist at the base of porphyrites and diabase, but descending towards the flat the overlying rocks are much crushed, sometimes slaty, and in one place show a recomposed mass holding carbonaceous matter, similar to the small outcrop on the Millstream to the east. These probably represent the basal beds of the coal measures, since they dip toward the Nicola river and should underlie the sediments of that valley. There is no indication of coal seams in this direction, however, and no outcrops are seen on the flat area which extends to the post-road at Nicola village.

Eastern end of coal basin.

The main area of volcanic rocks on the south side of the Nicola gradually approaches the river in a north-east direction and meets those of the north side of the basin a short distance below the foot of Nicola lake, near the bridge, so that the village of Nicola lies at the north-east extremity of the basin. All around the shores of Nicola lake the rocks are volcanic, and no trace of the coal formation is seen to the west of Quilchena creek, about eight miles distant.

Volcanicridge south of the Nicola.

About two miles south-west of the village of Nicola, on the road thence to the Princeton road, a side spur of the volcanics rises in a bold ridge from the river flat to a height of about 350 feet. The road to Hamilton creek ascends the ridge, which thence continues to the south-west for nearly three miles. The actual breadth of the outcrop of these rocks is not great, but the surface slopes slightly in the direction of Hamilton creek, and this ridge forms the northern margin of the basin in this area. There is no evidence that the rocks of this ridge are an overflow upon the sediments of the coal-basin. They are, apparently, like the rest of the volcanic hills, a part of the underlying series. Rock outcrops are seen on the river side of the bluff, but on the surface, south of the summit, the only exposures seen are of large blocks from the crest of the ridge. Similar rocks are seen at a number of places in the area to the south and west, as at Quilchena falls, and on Petite or Spious creek.

Southern margin of coal basin.

To the south and south-west the limit of the coal rocks is determined by the ridge of the volcanics. In this area the great mass of Iron

mountain is a conspicuous feature. The supposition held by some that these rocks overlie the coal basin is not warranted in any particular, as the sandstones and associated strata rest upon these instead of passing under them. The contact on the Princeton road east of the forks with the road up the Coldwater is about one mile and a half east of that point. On the road up Coldwater, at Godey creek, it is about half a mile south, but on this road the line of the hills gradually approaches the Coldwater river and meets the volcanics of the west side about three miles south of the forks of the roads, thus limiting the basin in this direction. As the basin in this part is narrow and filled in with heavy deposits of clay, the presence of workable coal seams in this southern part of the basin is not probable. The erosive force of this stream has doubtless cut away large portions of the sedimentary rocks in this part of the area.

Northern run of the basin.

North of the Nicola the limit of the basin is well defined by the high range of hills between Coutlee and Nicola lake. For a distance of three miles west of the lake there is a margin of flat land, about half a mile in width, between the post-road and the foot of the mountain range, heavily drift-covered, so that no rock outcrops are exposed. At this place a spur of the mountain approaches within a few yards of the road, below which the mountain mass again recedes and forms a recess for a mile or so, but again reaches the road a short distance east of the forks with the Princeton road, one and a half miles east of Coutlee. Though no rocks of the coal formation are visible in this area, it is regarded as probable that, if they underlie the clays, they dip south-east away from the hill range, as elsewhere. Small areas of limestone are found on the south flank of these hills, and have been burned for lime, and the patches of fossil-bearing rocks are at a higher level to the north.

Coal rock possibly cut out at Coutlee.

West of the forks of the Coldwater and Nicola rivers the ridge of volcanic rocks west of the Coal gully, after passing the mouth of the latter as already mentioned, turns sharply to the west and extends to the village of Lower Nicola. The width of the valley opposite Coutlee is scarcely one mile, the volcanics between the Coldwater forks and that place on the north side of the river keeping close alongside the post-road to the village, whence the ridge turns off to the north-west and continues up the east side of Ten Mile creek. In the valley opposite Coutlee the river flows through clay and gravel deposits, and has probably removed the greater part of the sedimentary rocks, possibly to the underlying volcanics.

Ten Mile creek.

About a mile below Coutlee, near the Indian houses, the hills on the north side trend northerly, and a basin is formed which extends north

along the east side of Ten Mile or Guichon creek for about eight miles. The bed of this stream is filled with boulders from the volcanic ridges, among which large blocks of granite are numerous. These are from the hills on the west side of the creek.

Coal and shale outcrops in Ten Mile valley.

Along a road which leads up the east side of the Ten Mile valley, after passing the flat which extends north from the post-road for about one mile, the ascent is quite rapid. There are no rocks in place with the exception of a ledge of gray sandstone about five miles from the post-road, but boulders of granite and other volcanic rocks strew the hillsides. Steep gullies cut the west slope of this valley and at a distance of about four miles from the junction of this stream with the Nicola, on the slope near the creek bottom, two outcrops, mostly of shale, are seen. The lowest of these is near the bank of the creek and consists of a bluff of gray and dark carbonaceous shale with a dip of S. 70° W. $<$ 30°, but no coal is here visible. About a fourth of a mile north-east of this another outcrop of similar shales is seen on the side of a hill which has been opened up to a slight extent and contains a bed of coal, the actual thickness of which was not ascertained, but it is reported to be four feet, the excavation being partially filled up. The coal seam at this place, however, appears to be of some importance. The dip of the rocks here is N. E. $<$ 25°, indicating an anticline between the two exposures. The shales and sandstones extend thence eastward across the road and for a mile or more beyond to the foot of the volcanic ridge. This ridge gradually approaches the creek, and at Eight Mile creek meets the volcanics of the west side of the valley, limiting the basin in this direction. This is near the northern limit of the Indian reserve. West of the creek the surface is a level bench of sand and gravel, which extends to the foot of the hills about three fourths of a mile distant, but the heavy deposits of drift effectually conceal the underlying rocks. There would, therefore, appear to be a basin of coal-rocks in this area with a length, along the stream from north to south, of about eight miles and a breadth of from two to three miles. To the south of the Nicola, on Lindley creek, (which enters the Nicola a short distance east of Ten Mile creek) outcrops of sandstone and shale are seen in the bed of the stream with a small deposit of coal near the upper level of these rocks. This has been already referred to.

Southern end of Ten Mile basin.

Coal on Lindley creek.

This coal outcrop, on Lindley creek, is about one mile south of the Nicola at an elevation of 500 feet above the river valley to the north. As seen in a tunnel, which has been driven into the west bank of the creek, the coal is broken up and inclined at a high angle. The seam does not appear to be continuous to any extent, and has apparently

been largely removed by denudation, part of the tunnel being driven in clay. The dip of the associated sandstone is north-east $<70°$. The sandstone can be seen at intervals on the creek for some distance below this outcrop, and apparently marks the southern extension of the Ten Mile creek basin. South of the coal outcrop the sedimentary rocks extend for about 100 yards. As the walls of this creek are quite steep in places and occupied by volcanic rocks, the indications of the presence of a large body of coal in this part of the area are not promising.

The above descriptions include practically all the rock exposures relating to the sediments of the Nicola valley basin, and their relations to the surrounding rocks. The only other available data are derived from the several bore-holes which have been put down in the area between the Nicola and Coldwater rivers.

Assuming the reliability of the logs, which have been obtained from the Mines Department at Victoria, it will be seen that the depth of the coal-bearing rocks in this part of the Nicola basin is at least 600 feet below the river level. How much more must be added to reach the base of the formation can not be ascertained until other and deeper borings have been made.

Borings in Niccla valley.

Several other borings made about the same time have given only negative results. They passed through a great thickness of drift and failed to reach bed-rock. One of these, near the bridge at the forks of the Nicola and Coldwater, penetrated the drift to the volcanics, the sedimentary rocks being entirely denuded, and another, at the north east angle of J. Garcia's lot No. 124, reached a depth of 219 feet without passing through the drift, and was abandoned.

During the past summer, several holes were put down in this area; none of them passed through the drift material to bed-rock. One of these, on W. Vogt's lot, No. 25, reached a depth of 200 feet; another, on the lot adjoining, to the south-east, near W. Charter's line, the same depth, and a third, on Armitage's small lot near the Nicola river, a depth of 280 feet. It is to be regretted that the first two, at least, were not carried down further as they might have struck the Cold-water seam, the dip of the outcrops on that river being in the direction of the bore-holes. Beyond establishing the fact that the drift deposits in this area are very heavy with consequent erosion, this work has not helped in solving the question of the extension of the known coal-seams in the Nicola valley. It can scarcely be supposed that the scouring out of this valley has removed all the coal rocks recorded in the borings of 1892-93, though it is evident that over a considerable area

there has been great denudation, especially in that part where the two rivers have joined. It is also probable that in that part of the valley between the dike-like wall below Nicola lake and the post-road, the erosion has been very heavy, and the economic value of the basin will be somewhat reduced in consequence.

An attempt was next made in the valley of Ten Mile creek, the location of the drill being on Collett's ranch near his north line or about two miles north of the Nicola river. A depth of 130 feet was reached, but owing to the large size and great number of the granite boulders in the drift at this place it was found impossible to reach the underlying rock with the machinery employed. Work in this direction has therefore been abandoned for the winter, none of the holes sunk in the valley having succeeded in penetrating the drift.

Other borings.

Borings were also made in 1903 near the summit of the hills on the road west from Coldwater to McInnis ranch, with a calyx drill. The rocks of the area are volcanics of the usual type, but at the location selected on a small brook there is a small outlier of recomposed volcanics, apparently an arkose and representing basal beds of an overlying formation, which has been almost entirely removed. In this rock small traces of carbonaceous matter are observed. The boring reached a depth of about 100 feet, but from samples of cores taken from different depths the rocks passed through were all of a volcanic nature.

Other boring operations are now being carried on at a point about three miles south-west of that just mentioned. The location is in the valley of a small brook, the surrounding rocks are all volcanics, and the depth of drift in the valley where operations commenced is very heavy. The results of this boring have not come to hand, but there is every reason to infer that the true coal formation will not be reached at this point.

Conclusion.

Generally speaking it may be said that the borings recently made in the Nicola-Coldwater basin have been of little practical value. From the fact that most of these have failed to reach the underlying rock, they afford no clue as to the actual structure or lie of the coal in this direction, and if the two holes bored in 1892-93, the logs of which are appended, are of any value it would be desirable that others should be put down which might show whether the thickness of the several seams there reported is continuous throughout the basin, or whether these may not increase in workable thickness at different points. It is therefore much to be regretted that while the drill was in place during the past summer the holes were not carried down at least to a depth sufficient to determine the extension eastward of the Coldwater seam.

NOTE.—All bearings in this report are magnetic.

In order to ascertain the value of the district as a future coal producer it will be necessary that a number of holes be put down at carefully chosen points, since only in this way can the extension of the seams found on Coal Gully and on the Coldwater be determined, owing to the wide spread nature of the drift deposits. This will take several years to accomplish and could be best done by a fusion of the interests of the several companies owning mining areas in the valley. Further borings required.

THE QUILCHENA COAL BASIN.

To the east of the Nicola-Coldwater areas and about eight miles from Nicola village, Quilchena creek, formerly known as McDonald's river, enters the south side of Nicola lake. Along this creek there is a considerable area of coal-bearing rocks comprising sandstone, shale and conglomerate with several coal seams, forming an important basin. Quilchena coal basin.

This area is in large part owned by the Diamond Vale Coal and Iron mines, Limited. It lies along the course of the creek for soem miles, and the first outcrop of the sandstone is seen on the Triangle ranch at a point nearly two miles south of the post-road at Quilchena post-office, where, in a small excavation on the west face of the hill, shales and associated coals with a thickness of about six feet, dip to the south-east. The basin extends southward along the creek from this place for about eight miles with a maximum breadth of two and a half miles. On the west side of the creek the volcanics form a series of hills in the direction of the Princeton road rising to an elevation of 1,000 to 1,500 feet above Nicola lake.

On the east side, sandstone and shale with seams of coal rise to an elevation of 800 to 1,000 feet above the creek bottom, the western slope being seamed by numerous gullies. Rock outcrops with occasional coal seams are seen in several of these nearly to the top of the ridge. The eastern side of the basin is bounded by volcanics similar to those of the western margin, consisting of diabase, porphyrites, &c., which have been described by Dr. Dawson (Rep. 1877-78), and regarded by him as probably of Triassic age. As the coal-bearing strata are like those of the Coldwater basin and of Tertiary age it is clear that in point of time the sedimentaries are more recent and the supposition that the volcanics overlie the coal measure rocks in this area is not sustained. The two areas were probably at one time continuous along the depression of Nicola lake, but the overlying rocks of this portion have been removed by denudation. Throughout the area there are no evidences of volcanic overflows of recent date, and the structure of this basin is therefore similar to that of Nicola-Coldwater area. Character of outcrop.

Limits of the basin.

Although the contact of the sandstone with the volcanics on the eastern margin of the basin is rarely seen, owing to drift deposits, it is probable that the basin, as a whole, is synclinal in structure. Along the west side the contact is seen at several points, and the sandstone is at a high angle with indications of faults. The northern limit is apparently defined by a deep gully on the east side of the creek, situated on the Triangle ranch about one mile and a half south-east of the post-road, and a short distance south of this, on the west flank of the hills and about seventy-five feet above the creek bottom is the shale and coal outcrop already referred to. An excavation was made at this place and the dip of the beds found to be S. 65° E. $< 40°$ as if the lower beds of the coal formation were following the curving outline of the surrounding hills on either side. If the underlying sediments are continuous at the same inclination, there should be a thickness of about 600 feet of sandstone and shale below this outcrop to the base of the formation in this direction, but this cannot be definitely stated owing to the lack of exposures.

On the west side of Quilchena creek, outcrops of shale and sandstone are exposed in a gully about five miles from the north end of the basin where they form a recessed area. This is on the Indian reserve ; and a broken seam of coal with a thickness of about three feet is reported as occurring at this place which may represent the outcrop on the Triangle ranch. The dips vary from north-east to west at angles of 25 to 30 degrees. Near the creek east of this outcrop, and about three-fourths of a mile distant, friable sandstone, shale and conglomerate dip N. 70° E. $< 25°$. Half a mile south of this the dip of the sandstone is S. 15° E., and about the same distance further south the dip is to the west at an angle of fifteen degrees, so that there are disturbances in this part of the basin probably due to faults. South of this, to the extremity of the basin which appears to form a somewhat elongated area in this direction, the surface is clay-covered and rock outcrops, for the most part, are obscured.

The eastern side of the creek shows better exposures at a number of points. Some of the gullies are deeply channelled and the underlying rocks are well exposed.

Outcrops on Triangle ranch.

Thus, on the side of the hill on Triangle ranch, about fifty feet above the first outcrop mentioned, there is another exposure of brown and carbonaceous shale with small partings of coal, This was not opened up. The dip is like that of the lower exposure, and still further up the slope other similar outcrops are visible. In the excavation made at the first exposure the shale, which is brown at the bottom, contains

a well-defined seam of coal which, with shale partings, has a thickness, as already stated, of not far from six feet.

On lot 1267 of the Diamond Vale plan of survey several gullies traverse the west slope of the hills. In the first of these examined large ledges of yellowish-gray sandstone, thin bedded, pass up into grayish and brownish shale with thin beds of conglomerate. Bands of dark, carbonaceous shale occur, and the dip appears to be N. 60° E. < 20°, and at one point there is a band of mixed coal and shale one foot thick. Thin beds of coal also occur, but owing to clay deposits it is impossible to determine the exact succession of beds at this place. Similar rocks are seen in several parallel side gullies, and seams of coal from four to six feet in thickness are reported as outcropping at elevations of 350 to 400 feet above the creek bottom.

The Tunnel or Jackson seam.

In a gully further to the south on the same lot the shales and sandstones are well developed and contain several coal seams. One of these has been opened to some extent by a tunnel driven in for about forty-five feet transversely along the seam, which here has an exposed thickness of about six feet. Though the coal at the outcrop is weathered, the greater part appears to be a bituminous coal of good quality. The seam dips N. 60° E. < 30°, and the coal contains two thin partings of one to two inches of sandy shale. The elevation at the mouth of the tunnel is given as 275 feet above the creek, and the roof and floor are of gray sandstone. This seam also outcrops on the south side of the gully, and the dip here appears to be somewhat less, or about 10 to 15 degrees. This may, however, be due to pressure of the overlying beds along the outcrop.

Above this, on the gully, outcrops of coal and shale are seen, indicating the presence of several seams, the thickness of which could not be definitely ascertained, but one outcrop near the top of the first bench is stated to have a thickness of about six to seven feet with shale partings. The elevation of this point is about 365 feet above the creek bottom.

The Palmer or Camp seam.

The highest exposed seam in this area is on a gully near the company's camp and near the top of the upper bench. The elevation is given as 775 feet above the creek and 500 feet above the outcrop of the tunnel seam. As exposed in the gully, there is here a thickness of about fifteen feet of coal, but at the outcrop this is crushed, owing to the pressure of overlying beds and their consequent breaking down on the face of the ravine. This seam was also struck in a shaft sunk a short distance to the north-east, which found the coal at a depth of fifty-two feet, and it was also opened to some extent by a short drift,

which had, however, fallen in, and could not be entered. In so far as examined, the coal at this place appears to be, for surface showings, of good quality.

Fossiliferous shales.

A short distance west of this outcrop there is a good exposure of fossiliferous brown shale with a dip of N. 30° to 60° E., the contained fossils being leaves, plant stems, fruit, &c., which have been examined and found to belong to the horizon of the Tertiary. They apparently represent the upper portion of the formation in this direction. To the east the surface of the ridge rises probably for rather more than a mile, but no outcrops were exposed owing to drift deposits. At the end of this distance several exposures of volcanics were seen in shallow gullies, and a little beyond, in the direction of Minnie lake, ridges of similar rock are exposed, thus limiting the coal basin in this direction. The probable line of contact between the coal formation and the volcanic rocks in this part of the area is near the corner of lots 1,268 and 1,269, whence it may be carried south-west through lots 1,280 and 1,283, and the basin should terminate southward on lot 1,292 near the line of Quilchena creek. The western line of the basin from this point is fairly straight along the west side of the creek, with the exception of the small side expansion alluded to on the Indian reserve.

Volcanic rocks.

To the east of the supposed contact of these rocks with the underlying volcanics in the direction of Minnie lake, the latter form a well defined ridge with numerous outcrops for about one mile, when the surface gradually descends towards the lake. Beyond this ridge no rock exposures are seen in this direction, and there does not appear to be much indication of a second basin of coal rocks in this part of the area.

As a whole, the character of the sandstone appears to be not very different from that observed in the Coldwater basin. There is, however, a larger development of brownish shales, and the characteristic fossil beds of the Quilchena basin were not seen in the western area. In the southern portion of the basin the sandstone is better developed, but no coals were seen. It is, however, possible, that such exist in this portion, but their presence can best be ascertained by boring.

The coal outcrops in this basin, of which seven can be recognized in the several gullies, are at a higher level than in the Coldwater district. They all occur on the eastern slope of Quilchena creek, so that the productive portion of the basin will doubtless be found on the east side of that stream. The denudation which has taken place along the valley has doubtless removed large portions of valuable coal lands, but this denudation does not appear to have been so excessive as in the area along the Nicola river where the two streams converge.

In view of the widespread nature of the drift throughout the entire area the actual economic value of these areas can only be ascertained by a number of bore-holes. Faults may exist of which there is practically no evidence at the surface, and the prospective value of the property as a producer of coals may be largely reduced from this cause.

Coal Companies.

The principal companies owning coal mining areas in the Nicola valley just described are :—

The Nicola Coal Co., Limited, with head-quarters at Spokane, Washington, U.S., owning areas on Lindley creek.

The Coutlee Coal and Iron Co., with headquarters at Colfax, Washington, U.S., owning areas in what is known as Midday valley on the hills west of the Coldwater river, near McInnis ranch.

The Nicola Coal and Iron Co., with head-quarters at Vancouver, owning the Garesche-Green (Coal gully) areas and the lots along the Coldwater river from the south end of the basin down to Blair's lot, No. 172.

The Nicola, Kamloops and Similkameen Coal and Railway Co., owning areas to the south-east of the Coldwater.

The Canadian Pacific railway, owning leases of a number of lots in the valley, principally east of the Coldwater river.

The Diamond Vale Coal and Iron Mines, Limited, owning the Quilchena areas.

Copper camps.

In addition to the examination of the coal-basin proper some time was spent in investigating the copper-bearing rocks of the Aspen Grove mining camp, situated on the road to Princeton. These are located from 18 to 25 miles south-east of Coutlee and comprise a large number of claims, some of which show little more than prospects, while on others a considerable amount of development work has been done. An examination was also made of the Aberdeen mining camp situated to the west of Ten Mile creek, about twelve miles north of the post-road leading to Lower Nicola. The results of this work are given in the accompanying report by Mr. R. A. A. Johnston.

RECORD of boring No. 1, near Coutlee, on Coldwater river, lot 123, Tp. 91, approximate elevation above sea-level, 1,996 feet.

Boring No. 1, 1891.

Material.	Thickness of beds.	Depth from surface.
	ft. in.	ft. in.
Gravel and clay, dark	55 ..	55 ..
Shale.	2 ..	57 ..
Coarse gray sandstone.	64 ..	121 ..
Shale, dark	5 ..	126 ..
Sandstone, dark	5 ..	131 ..
Sandy shale, dark	2 ..	133 ..
Sandstone, fine, dark	6 ..	139 ..
Sandstone, shaly, dark	49 6	188 6
Slate	1 6	190 ..
Coal	3 8	193 8
Sandstone, gray.	.. 6	194 2
Coal	1 4	195 6
Sandstone, gray	.. 8	196 2
Coal	.. 7	196 9
Sandstone, carbon streaks.	12 3	209 ..
Sandstone, shaly, dark	3 3	212 3
Coal	1 5	213 8
Shale, light.	3 4	217 ..
Sandstone, 2 in. coal at top.	13 ..	230 ..
Slate, black	1 ..	231 ..
Sandstone, fine dark	10 .. (?)	241 ..
Sandstone, coarse, gray	11 ..	252 ..
Sandstone, with shale partings.	8 0	260 ..
Sandy shale, dark	9 0	269 ..
Coal	.. 10	269 10
Sandstone, partings of shale	7 2 (?) as in log.	287 ..
Slate, dark	2 ..	289 ..
Sandstone, dark	1 ..	290 ..
Shale, dark	1 ..	291 ..
Slate, black	9 ..	300 ..
Shale, black	4 ..	304 ..
Sandstone, dark	2 ..	306 ..
Shale, dark	7 ..	313 ..
Sandstone, dark	1 ..	314 ..
Shale, black	2 ..	316 ..
Sandstone, carbon streaks	22 7	338 7
Coal, 2 in. slate in middle	1 5	340 ..
Slate, 1 in. coal at bottom	1 ..	341 ..
Sandstone and shale, dark.	3 ..	344 ..
Sandstone, gray	11 ..	355 ..
Shale, dark.	3 ..	358 .
Sandstone with conglomerate, 1 ft.	29 ..	387 ..
Shale, carbon streaks, dark	2 ..	389 ..
Sandstone, dark and gray..	10 ..	399 ..
Shale, dark	8 ..	407 ..
Sandstone, carbon streaks, gray.	39 ..	446 ..
Slate, black	3 7	449 7
Coal	.. 7	450 2
Sandstone, fine gray	5 10	456 ..
Coal	.. 6	456 6
Sandstone, fine gray	1 6	458 ..
Shale, dark.	3 ..	461 ..
Sandstone, gray	17 ..	478 ..
Sandstone and shale, dark.	11 ..	489 ..
Sandstone, dark and gray..	15 ..	504 ..

RECORD of boring No. 1, near Coutlee, on Coldwater river, lot 123 Tp. 91, approximate elevation above sea-level, 1,996 feet.—*Con.*

Boring No. 1, 1891.

Material.	Thickness of beds.		Depth from surface.	
	ft.	in.	ft.	in.
Sandstone, dark	3	..	507	..
Sandstone, gray	2	..	509	..
Sandstone, dark	8	..	517	..
Sandstone and shale, dark	2	..	519	..
Sandstone, soft, gray	15	..	534	..
Sandstone and shale, gray	46	..	580	..
Shale, carbon streaks, dark	8	8	588	8
Coal and shale	1	7	590	3
Sandstone and shale, dark	9	9	600	..

Begun January, 1891, finished March 17 (?) 1891.
Signed, G. L. Davis.

RECORD of boring No. 2, Nicola valley, 1893, Nicola Valley Co.

Boring No. 2, 1893.

Material.	Thickness.		Depth.	
	ft.	in.	ft.	in.
Clay and sand	80	..	80	..
Sandstone, coarse, gray	29	..	109	..
Shale, dark	4	..	113	..
Sandstone, gray	6	..	119	..
Shale, dark	3	..	122	..
Sandstone, gray	7	..	129	..
Shale, dark	8	6	137	6
Coal	..	8	138	2
Shale, dark	1	1	139	3
Coal,	..	6	139	9
Slate, dark	..	4	140	1
Coal	4	4	144	5
Shale, dark	3	7	148	..
Sandstone, gray	10	..	158	..
Shale, dark	5	..	163	..
Sandstone, gray	2	..	165	..
Shale, dark	1	6	166	6
Coal	1	11	168	5
Sandstone and shale, gray and dark	21	7	190	..
Sandstone, coarse, gray	13	..	203	..
Conglomerate, gray	12	..	215	..
Shale, carbon streaks, black	4	..	219	..
Coal	..	5	219	5
Slate, black	..	7	220	..
Sandstone, shale partings, gray	15	..	235	..

RECORD of boring No. 2, Nicola valley, 1893, Nicola Valley Co.—*C*

Boring No. 2. 1893.

Material.	Thickness.	Depth.
	ft. in.	ft. in.
Shale, carbon streaks, dark	10 ..	245 ..
Sandstone, gray	6 ..	251 ..
Sandstone, coarse, gray	4 ..	255 ..
Conglomerate, carbon streaks, gray	25 ..	280 ..
Shale, dark	5 ..	285 ..
Shale, carbon streaks, black	7 ..	292 ..
Shale, dark	3 ..	295 ..
Conglomerate, gray	2 ..	297 ..
Shale, black	3 ..	300 ..
Sandstone, carbon streaks, black	34 5	334 5
Coal	. 7	335 ..
Sandstone and shale, dark	16 ..	351 ..
Conglomerate, dark	7 ..	358 ..
Sandstone and shale, gray, dark	65 ..	423 ..
Conglomerate, gray	3 ..	426 ..
Sandstone, carbon streaks, gray	4 ..	430 ..
Conglomerate, gray	37 ..	467 ..
Sandstone and shale, dark	31 ..	498 ..
Conglomerate, gray	39 ..	537 ..
Shale, dark	11 ..	548 ..
Sandstone, gray	14 ..	562 ..

On N.W. quarter sec. 14, Tp. 91, property of J. Garcia.
Certified by G. L. Davis.

LOG of the boring at Quilchena, 1904-05, Diamond Vale Coal Co.

Boring No. 1, Diamond Vale.

October—

Sand, gravel and boulders, surface to	16 feet.
Cemented gravel	24 "
Clay and gravel	28 "
Clay	46 "
Sand	47 "
Clay	66 "
Cemented gravel	74 "
Hard clay	79 "
Hard cemented gravel	83 "
Clay	98 "
Conglomerate	103 "
Reddish sandstone	107 "
Conglomerate	109 "
Sandstone	114 "
Brown shale	116 "
Dark shale with coal streaks	123 "
Sandy shale	124 "
Sandstone	125 "
Shale	172 "
Sandy shale	185 "
Shale with coal streaks	188 "
Shale	192 "

Sandstone	193 feet	Boring No. 1, Diamond Vale.
Shale	198 "	
Conglomerate	199 "	
Brown shale with coal streaks	217 "	
Conglomerate bands in shale (3 in. at 218; 12 in. at 249.)	249 "	
Shale	283 "	
Hard conglomerate	284 "	
Black shale	289 "	
Sandy shale	291 "	
Shale	305 "	
Shale	308 "	
Conglomerate	317 "	
Shale	324 "	
November 17—		
Coal, 1 ft	327 "	
Shale 6 in, ' conglomerate 6 in.	328 "	
Shale and conglomerate bands	417 "	
Sandstone	418 "	
Black shale	423 "	
Conglomerate and shale bands	434 "	
Coal (4 in.) and shale	439 "	
Coal, 1 ft	440 "	
Black shale	441 "	
Coal, 3 in.		
Shale and sandstone	456 "	
Coal, 1 ft	457 "	
Shale	468 "	
Shale and coal	471 "	
Coal, 2 ft	473 "	
Shale 2 in., conglomerate 10 in.	474 "	
Shale	480 "	
Conglomerate	481 "	
Coal, 1 ft. 6 in	$482\frac{1}{2}$ "	
Shale with small band of conglomerate	499 "	
Sandy shale	505 "	
Sandy shale	513 "	
Conglomerate	514 "	
Sandstone	515 "	
Shale	517 "	
Conglomerate	519 "	
Dark shale	524 "	
Shale	555 "	
Conglomerate	556 "	
Shale	558 "	
Conglomerate,	559 "	
Shale	565 "	
Coal, $1\frac{1}{2}$ ft	$566\frac{1}{2}$ "	
Shale	570 "	
Conglomerate	571 "	
Shale with conglomerate band at 574-575	577 "	
Light shale	577 to 586 "	
Dark shale	588 "	
Coal 4 in., shale 8 in., coal 1 ft. 2 in	590 "	
Light shale	596 "	
Conglomerate	597 "	
Brown shale	600 "	
Light shale	606 "	

Boring No. 1, Diamond Vale.

Coal	1 ft.	0 in.
Shale	0 "	6 "
Coal and shale	1 "	0 "
Soft black dirt	2 "	3 "
Coal	2 "	6 "
Shale	1 "	3 "
Coal and shale	1 "	0 "
		615 ft. 6 in.
Soft brown shale	623 "	
Soft gray sandstone	626 "	
Shale	627 "	
Fine conglomerate	629 "	
Sandstone	630 "	
Dark shale	631 "	6 "
Light coloured fine conglomerate	633 "	6 "
Sandstone	634 "	6 "
Coal 1 ft., shale 3 in., conglomerate 9 in	636 "	6 "
Shale, mostly hard	668 "	
Gray sandstone	672 "	
Light shale	678 "	
Conglomerate	678 "	8 "
Coal, 6 in.	679 "	2 "
Fire clay	689 "	4 "
Coal, 2 ft. 4 in	691 "	8 "
Shale	706 "	4 "
Coal and shale, 9 in	707 "	1 "
Shale, 4 ft. 3 in	711 "	4 "
Coal and shale, 1 ft. 8 in.	713 "	
Shale	715 "	
Hard, close-grained rock	717 "	
Conglomerate	719 "	
Shale	721 "	

Boring abandoned.

Boring not altogether satisfactory, owing to frequent caving of hole and difficulty of taking out cores, some of which were worn away. In this boring about twenty-four feet of coal were passed through without reaching the 'tunnel seam,' the boring beginning below the 15-foot seam. The log shows the presence of several seams which are not exposed on the face of the hill owing to the heavy mantle of drift over much of this area.

The Copper Claims of Aspen Grove and Aberdeen Camp, B.C.

By Mr. Robert A. A. Johnston.

Aspen Grove.

Aspen Grove camp is embraced in a ridge of low mountains forming the divide between Quilchena creek flowing to the north and Otter creek flowing to the south. Its northern limit may be set at a point about fifteen miles south of Nicola lake. From there it extends in a southerly direction for about twelve miles and covers, in all, an area of about thirty square miles.

The rock formation of the area includes an extensive development of an old igneous series now represented in the main by breccias and basic schists. These are traversed in various directions by more or less extensive dikes of porphyritic and granitic eruptives, the material of which has often been freely injected into the surrounding rock and is to be found as the paste of much of the breccia.

General character of the rocks.

Extensive alteration of the older rocks has succeeded the invasion of these intrusives, resulting sometimes in the converting of the schists into more or less impure limestones and dolomites. Chalcedony and serpentine are often found filling cavities and crevices. Pale brownish yellow calcite and yellowish-green epidote are of frequent occurrence as druses in some of the localities. The only minerals of any economic importance so far observed are chalcocite, bornite, chalcopyrite, native copper and specular iron. These seem to be pretty generally distributed through the older rocks, but are nowhere observed concentrated in any very great abundance. Stains of green carbonate of copper are to be met with throughout the area. Iron pyrites occurs very sparingly in a few places.

Numerous claims have been staked in the area during the past five years. In the majority of cases, however, the claims have either been abandoned or such work as has been performed on them has been entirely in the nature of assessment duty. In only a few instances have any of the claims been developed to any appreciable extent.

The following notes refer only to the more important openings that have been made.

Sovereign claim.

Sovereign Claim :—On this property, a dike several feet in width consisting of a dark gray diabase felsophyre is exposed for some distance. It runs in a direction bearing N. 25 E. To the westward of this dike the rocks have been shattered and injected with material similar to that of the dike, forming a somewhat coarse pyroclastic breccia.

To the eastward of the dike the rocks show evidences of having been subjected to much pressure, so that their true character is much obscured. In general they present a purplish-brown colour, mottled here and there with darker or lighter shades. They are highly feldspathic in their composition, while small prismatic crystals of a dull green pyroxene are abundantly developed. As secondary constituents, small quantities of white calcite, greenish-yellow epidote and yellowish-white serpentine are more or less evenly distributed through the mass.

In a few instances, masses of native copper of several pounds weight have been found occupying fissures, while small grains of the same mineral are often observed clinging to the walls of fractures. Stainings of the green carbonate of copper are abundant; those of the blue carbonate occur more rarely.

Copper standard claim.

Copper Standard Claim :—On this property the rocks are exposed along a bluff for two hundred feet or more in length and sixty to seventy-five feet in height. This bluff has a northerly exposure, and in a recess near its base a shaft has been sunk to a depth of fifty-five feet, and from the foot of this shaft a drift has been run in for a distance of forty-five feet. This shaft was filled with water at the time of my visit, but the character of the material displayed on the dump did not differ essentially from that of the ledge in general.

The rock consists of a fine-grained intermixture of a purplish feldspar and a pale green pyroxene traversed by thin bands of yellowish-white serpentine. Stains of green carbonate of copper are abundant on exposed surfaces of the rock.

Giant claim.

The Giant Claim :—A tunnel sixty feet in length has been driven into the north side of the mountain on which this claim is situated. The rock consists throughout of a compact gray diabase, enclosing here and there small masses of pinkish-white calcite and a very little iron pyrites. At the top of the hill, a short distance above the mouth of the tunnel, the iron pyrites becomes more abundant and stains of blue and green carbonates of copper are common.

Copper Chief Claim :—Two openings on the south side of the hill on this claim show abundant stains of blue and green carbonates of copper in a shattered mixture of diabasic and chloritic rocks.

Other claims.

Big Kid Claim :—A small excavation on this claim discloses small quantities of bornite and chalcopyrite in a gangue composed of a shattered mixture of diabase and chlorite schists with small quantities of epidote.

The Hub Claim :—At this claim occasional stains of green carbonate of copper are to be observed distributed over a dark brown brecciated andesite.

The Golden Gate Claim :—At this claim a green diabase schist dipping about N. 60 E. holds trifling amounts of chalcocite.

The Georgia Claim :—A shaft has been sunk on this claim to a depth of thirty-five feet. The material shown on the dump consists

of a dark reddish-brown andesite stained with green carbonate of copper.

Copper Belle and Bluebird Claims :—The material of these two claims is precisely similar in character to that of the Georgia Claim, and consists of a gray fine-grained andesite stained with green carbonate of copper.

Bachelor, Nicola and Highland Claims :—The material of these claims consists of a shattered coarse-grained andesite traversed by small stringers of calcite. Occasional small grains of native copper are to be found disposed along the walls of cavities.

Big Sioux Claim :—At this claim thick bands of a green diabase alternate with similar bands of a rather coarse-grained augite-syenite, dipping about N. 70 W. at a high angle. The syenite shows no evidences of alteration from pressure and may be intrusive in the diabase, which is, in some parts, brecciated and generally much fractured ; alteration products of an epidotic or chloritic character are likewise more or less abundantly distributed through the diabase. In some portions small quantities of chalcocite and bornite are observable. Stains and coatings of green carbonate of copper are abundant.

A shaft has been sunk on this property to a depth of twenty eight feet and a considerable quantity of low grade ore has been raised.

The Maggie Claim :—A shaft has been sunk on this location to a depth of about fifty feet in a greenish-gray fractured and fissured diabase.

The fissures are sometimes filled or lined with a yellowish white serpentine and in a large fissure a short distance east of the shaft fine specimens of white stalactitic chalcedony have been found. Copper pyrites occurs sparingly on this claim. To the eastward of the shaft the district is traversed by a zone of rusty weathering silicious dolomitic schists dipping S. 50 W. at a high angle.

The Cincinnati Claim :—A tunnel has been driven into the side of the mountain for a distance of about two hundred and eighty feet. The rock is a moderately coarse grained andesite, holding small quantities of iron pyrites and showing frequent stains of green carbonate of copper.

The Portland Group :—This ground comprises the Portland, Covington, Vicksburg and Quebec claims. A shaft said to be one hundred and ten feet deep has been sunk on this property. At the time of my Portland group.

visit, however, it was partially filled with water. Somewhat extensive strippings have also been made on the property. The rock, as revealed by these strippings as well as by an examination of the material of the dump, is shown to be in general a quartz-andesite. Much of it has been fractured and recemented with infiltrated silica and green serpentine. It shows occasionally small quantities of chalcocite and specular iron while stains of green carbonate of copper are more or less abundant. Narrow dikes of a gray diabasic felsophyre cut through the andesite in a direction bearing N 10 E.

Mount Maria.

Vancouver and Westminster Claims:—In its central portion Mount Maria is traversed by a heavy dike of intrusive granite, following a course approximately N. 85 W. At the summit of the mountain the dike presents on its southern margin a sheer wall of from twenty five to one hundred feet in height and upwards of six hundred feet in length. In composition it consists of a fine-grained admixture of a light gray feldspar with comparatively minor amounts of white quartz and brown mica.

To the south of this dike, material of similar composition is seen to form the paste of a pyroclastic breccia derived from the andesite of the region. In some portions of this breccia stains of green carbonate of copper are abundant and in the case of the Westminster and Vancouver claims, which occupy adjacent positions on an elevated bench on the southern slope of the mountain, small quantities of chalcocite are also to be found. On the latter of these two claims a shaft has been sunk to a depth of twenty-five feet, but so far as could be observed the results did not seem to be very encouraging.

Buckhorn claim.

Buckhorn Claim.—This claim is situated on the summit of Bear mountain at the southern end of Aspen Grove camp. Some small openings have been made on it, disclosing abundant stains of green carbonate of copper on a moderately fine-grained reddish gray to dark gray andesite.

ABERDEEN CAMP.

Aberdeen camp.

Aberdeen Camp is composed of a number of claims in or about the district drained by Brom creek and its branches. Brom creek is a small rapid stream flowing down through a deep ravine from the hills to the westward of Ten Mile or Guichon creek and emptying into the latter stream at a point about ten miles from its confluence with the Nicola river.

Heavy deposits of drift material conceal, to a large extent, the underlying rocks, but where these latter are exposed they are seen to

consist of a series of granitic eruptives enclosing remnants of an old greenstone series and at times forming the cementing material of breccias made up of fragments of the latter.

Granite eruptives.

These granitic eruptives are largely made up of a moderately fine-grained syenite consisting almost wholly of a mixture of a light gray feldspar and black hornblende. At different points, however, they are seen to merge gradually into a type in which white quartz becomes abundant and the hornblende is replaced by a dark brown mica. Small crystals of a pale red garnet are of frequent occurrence in this latter type. Sometimes, as a result of local disturbance, the rocks are observed to exhibit a decided schistosity and some very thin bands consist of a rather coarse-grained light reddish feldspar to the almost entire exclusion of other minerals. Small stringers and masses of white quartz and white calcite with specular iron frequently occur.

The character of the greenstones previously mentioned has been greatly obscured by the changes produced during the intrusion of the granites. In some of the less altered portions they are seen to be highly augitic but for the most part they have undergone such complete changes that their original constitution is nearly or quite obliterated. Drusy cavities lined with white or reddish white quartz are abundant. Chalcocite and specular iron are distributed through it to some extent but the quantity does not seem to be large. Stains of green carbonate of copper are frequently seen.

Aberdeen claim.

Only two of the claims have been opened up to any very appreciable extent. These are the Aberdeen and the IXL. The former of these claims is situated on Brom creek at a point about a mile from the mouth of the creek, where a large mass of the greenstone is enclosed between two coarse joint planes in the granite, striking about N. 85° W.(mag). A tunnel has been driven for considerably over one hundred feet along the strike. The greenstone, coated with green carbonate of copper and carrying small quantities of chalcocite and specular iron is met at various intervals along the entire length of the tunnel, the intervening spaces being occupied by either greenstone breccia or granite. Some low grade ore has been taken out but work for the present has been discontinued.

I X L claim.

The I X L claim is situated on a small creek of the same name, a branch of Brom creek, and lies nearly a mile and a half in a northwesterly direction from the Aberdeen claim. In addition to some small openings a shaft has been sunk on this property to a depth of one hundred feet. The rocks consist of a breccia made up of fragments

of the old greenstones cemented in a paste of the eruptive granites. A coarse jointed structure with a dip S. 55° E. < 45° is distinctly visible. The material holds small quantities of specular iron; stains of green carbonate of copper are found.

Examinations were also made of the King Solomon and Midnight claims which respectively occupy opposite positions on the right and left banks of Ten Mile creek a little more than half a mile above the mouth of Brom creek. At the former of these two claims is seen a heavy exposure of a gray granitic gneiss dipping S 20° W. nearly vertical. On the opposite bank of the creek at the Midnight claim the same rock is seen dipping E. < 60°. It includes scanty remains of the old greenstones and thin bands of red feldspar are to be seen intercalated with it. Small quantities of chalcocite, specular iron and green carbonate of copper are found associated with the greenstone portions but in no instance could these minerals be found traceable to the granites.

Iron Mountain.

Iron mountain.

A number of claims have been staked on or about the summit of Iron mountain and in a few instances a small amount of development work has been done. The occurrences, so far as could be observed, however, do not appear to be of any importance economically. The summit of the mountain is comprised in a series of alternating ridges with shallow valleys between. These ridges conform in direction with the strike of the rocks, which varies from N. to N. 55° W. with a dip to the west or south-west. The rock formation embraces a series of interbedded jaspery quartzites, felsophyres and brownish-coloured rhyolites. The latter are also often found as the paste of a dark brown feldspar breccia. These are all frequently traversed by veins of white quartz either parallel with the strike or cutting it at various angles. These veins are sometimes seen to carry trifling amounts of specular iron, chalcopyrite and pyrite; green carbonate of copper or malachite is often observed either as an earthy coating or in fine radiating groups of small acicular crystals. In no instance, however, were any of these minerals noted in any appreciable amount.

The Lardeau Mining District.

By Professor R. W. Brock.

Introduction.

In pursuance of your instructions the field work for the season 1904 was carried on in the Lardeau district, in continuation of that of last year. As in the past, the topographical work was in charge of Mr. Boyd of this Survey. Captain Deville of the Dominion Lands Branch,

having generously loaned the necessary instruments, this work was done by photographic methods in place of the system of sketching to scale previously adopted, thereby affecting the saving of time and securing an increased accuracy. As heretofore, the geological work and topographical surveys were carried on concurrently. Last season the continued wet weather seriously interfered with operations, while this year the prolonged drought occasioned numerous and extensive forest fires, the smoke of which hung like a pall over the country from August 6 to the end of the season, blocking the work completely for a large portion of the time. On account of these unfavourable conditions the work accomplished in the two seasons scarcely equals that of one season under normal conditions.

Nearly sufficient information was obtained, however, for an oblong map of the district between Revelstoke and Schroeder creek on Kootenay lake (the north end of the West Kootenay map sheet) for a width of about twenty miles. Included in this area are the productive portion of Fish river, the entire basin of the Lardeau river, most of the prospected portion of the Duncan river and the head of Kootenay lake.

Division of work.

The season was begun at Revelstoke where our outfit had been left for the winter. While Mr. Boyd was experimenting with the topographic camera to determine the length of exposure necessary under the climatic conditions of this district, I examined the geological section exposed in the Illicilliwaet valley from Glacier to Revelstoke to compare these rocks, which form the Selkirk series of Dr. Dawson, with those obtaining in the Lardeau district. From Revelstoke we went to Trout lake. Micrometer surveys were made of Trout lake, the Lardeau valley to Kootenay lake, the head of Kootenay lake to Kaslo and of Howser lake. By the end of June, when this work was completed, the snow had sufficiently melted to permit of work on the high summits. After an excursion over Lavina mountain, to get the southern portion of the district properly oriented, we moved up to Trout lake to take up the mountain work where it had to be abandoned last season on account of snow. The districts about Trout creek, Silver cup mountain, and Haley and Hall creeks were finished before the smoke interfered with this part of the work. The loss of time from this cause made it necessary, in order to cover the sheet planned, to finish the southeastern portion of the area in much less detail. While it was still too smoky for regular work, we made traverses in the neighbourhood of Poplar creek and ran a survey up Duncan river as far as Haley's ranch. While working here a slight rain cleared the smoke from the Duncan valley; we therefore hastened down to Howser lake to obtain the necessary information for the southeastern end of the

Forest fires.

sheet. After two days the smoke again obscured the country and the season came to a close on September 23rd. Mr. Boyd, however, remained ten days longer until he secured another triangulation station to complete the topographical map.

As this season's work was the continuation of last year's which is fully treated in the Summary Report for 1903, it will be unnecessary in this report to do more than mention the special features noted during the present year.

PHYSIOGRAPHY.

Character of the country.

The character of the country is similar to that described last year. The mountains, especially on the Duncan slope, are rugged and Alpine. The longitudinal valleys, Lardeau and Duncan, uniting to form Kootenay valley, are U-shaped, though, above Lake creek, the Lardeau is a flat V. The tributary valleys are narrow steep and V shaped debouching through narrow box canyons. Almost every tributary creek furnishes an example of this, although in a few instances a creek has not yet cut down to grade but falls from its hanging valley into the main artery. Beautiful fans or cones have been formed at the mouths of some of the main tributary valleys. The village of Lardo is built upon the side of one of these. The somewhat complicated topography about the head of Kootenay lake is due to a change in the strike of the rocks and to modifications produced by the Lardeau and Duncan tongues of the Cordilleran glacier.

The main Valleys.

As mentioned last year, the main valleys follow the strike of the rocks, the direction of the tributary valleys being determined by the main jointage of the rocks. Above the head of Kootenay lake the strike of the rocks changes from a somewhat northerly to a more north-westerly direction ; consequently, the direction of the main Lardeau and Duncan valleys is thrown out of line with regard to Kootenay valley. It is about three miles above the head of Kootenay lake to where the valley branches. The north-westerly extension is occupied, first by the lower part of Meadow creek for a few miles and then by the Lardeau River, only a low gravel terrace, which extends across the valley, preventing the river from following this valley to the lake. The north-eastern branch valley is occupied by the Duncan river. About a mile up it the Lardeau river, which has switched over from the north-westerly valley, enters the Duncan valley. These valleys, for some miles up, are very little higher than the lake level and in high water are more or less submerged. The ridge between Meadow creek and the lower part of the Lardeau river, is only a few hundred feet high and that between the Lardeau and Duncan rivers for a few

miles above their confluence is also very low and is notched by a narrow pass utilized by the road connecting Howser station and Howser lake. The Duncan valley is about one mile wide and up to Haley's ranch has a very low gradient. A short distance above the mouth of the Lardeau, the Duncan expands into Howser lake, a beautiful little mountain lake about nine miles long. Two arms on the east side of the lake, one running south-east and the other north, almost make a large island of the ridge separating them from the main lake ; at their upper ends they are separated by only a quarter of a mile of low ground. Where the Duncan river enters the lake, a typical delta has been formed with numerous sloughs, lagoons, etc. Meadows, sloughs and flood-lands of the river extend almost to Haley's ranch. It is evident that considerable changes in the topography about this point have taken place during and after the glacial period. It seems probable that the Lardeau flowed down the lower Meadow Creek valley ; that the Duncan meandered through the arms of Howser lake and through the gap behind Howser city to the Lardeau, and that Glacier creek formed the last stretch of the Duncan-Lardeau valley. In this case, the ridge between Meadow creek and Lardeau river represents the end of the Duncan-Lardeau divide, and the knob on the south end of the present Duncan-Lardeau divide, is the remnant of the ridge separating Glacier creek and the Duncan. The heavy glacier which filled these valleys, unable to make the sharp turns, straightened the valleys and deeply trenched them. In the Duncan valley this would result in the formation of the main Howser lake, the cutting through of the spur between the Duncan and Glacier creek, widening the mouth of the latter and truncating Lavina and Hamill spurs. In the Lardeau it would result in the cutting through of the low spur between the Lardeau and the old Duncan valley. The deep trenching of the main valleys by the ice left the tributaries as hanging valleys at least a thousand feet above the main valleys. The more active of the tributary streams have now, at their mouths, cut down to grade, forming the deep box canyons, with beautiful water-falls and cascades at the present heads of the canyons. The north ends of Kootenay and Howser lakes are being rapidly silted up by the entering streams which are still heavily laden with rock-meal and debris from the innumerable local glaciers. Most of the streams head in cirques formed by local glaciers which, in a great many cases, are still present and at work From the cirque, there is always a steep drop to the valley level, then a reach with a low gradient and finally a steep drop into the canyon bottom.

Howser lake.

GLACIAL GEOLOGY.

Little need be added to the report for last year. Evidences of the Cordilleran glacier and its remarkable thickness were obtained at

Glacial heights.

several points, though over the greater part of the district they have been obscured by the large local glaciers.

The usual criterion for recognizing the height reached by a glacier by the marked change in topography of the portion of the mountain above the ice from that of the portion buried under the ice does not appear to be of use in this district. Except where local glaciers have been recently at work the change from the rounded outlines to the rugged or talus-covered slopes is found about tree line. Yet the indisputable evidence of erratics and striation shows that the thickness of the Cordilleran glacier in this district must have greatly exceeded this, and I am led to the conclusion that, although the majority of the summits have the appearance of having their heads above the sea of ice, few, if any, of them have really been nunataker. In addition to striation on high ridges and summits that could not have been produced by local glaciers, I found on Trout mountain, at 8140 feet, a granite erratic that must have been carried from the north by the Cordilleran glacier, and on the summit of Abbot mountain, 9140 feet, a typical glacial quartz pebble flattened on one side and broken with a sharp edge. The country rock all about here is white crystalline limestone; these pebbles, therefore, cannot be local, and as this is the dominating peak in the locality, no local glacier could have transported them. The general direction of the striations produced by the glacier is here about S. 14° E.

On the west slope of the Duncan valley, near the head of the lake and 1600 feet above it, three sets of striations crossing each other were observed. The oldest had a direction of S.W., the next S. 50° W., and the latest S. 30° W. These variations in directions were, no doubt, due to the effect of the Duncan valley on different thicknesses of ice.

Local glaciers

Local glaciers abound, most of the higher peaks supporting numerous small glaciers. Some summits are almost buried under the ice, others have large nunataker separated by thin tongues of ice, while the majority support small isolated glaciers on all their sides. The small glaciers have excavated cirques, except in a few instances, when the ice is found perched on the side of a mountain where one would think no snow could collect. As the local glaciers retreat and become smaller, cirques are produced within cirques, or 'tandem' cirques, to use Dr. Daly's expression, result. Perfect cirques are formed irrespective of the country rock, so that they are found in granite, diorite, limestone and phyllite.

The largest of the local glaciers is that lying between Glacier and Little Glacier creeks, probably about eight miles long. These tongues

run into Little Glacier valley and around a nunataker and unite in Glacier creek valley. This glacier, I should judge, has a maximum thickness of at least a thousand feet. Most of the glaciers are traversed by huge crevasses, and ice falls are numerous. In the summer, the movement of the ice must be rapid. Bannockburn glacier, near the head of Hall creek, plunges over a ledge of rock, the ice from above breaking off and falling on to the lower portion of the glacier. The surface of this portion is dotted with blocks of ice that have fallen from the mass above the ledge of rocks. When examined, the last discharge of ice from above was fifty yards from the fall and the next a hundred yards farther down or 150 yards from the fall. The blocks in both cases were still angular and the snow on which they rested had not been melted by the reflection of the sun from their southern faces. Earlier breaks now farther down on this ice tongue show the corners of the ice blocks melted off ; the snow under their south faces is melted and the ice of the glacier beneath has also suffered. As the sun at this time of the year (August) is very strong and the weather clear, the two breaks, 50 and 150 yards from the fall, could not have been long exposed to its influence.

Typical boulder clay was seen on the surface of Marquis and Gilbert claim 900 feet above Poplar creek. Lying on a fluted surface, the thickness varies greatly.

Silt, usually well terraced, is found in protected areas along the larger valleys for at least 1,000 feet above the valley bottoms.

GEOLOGY OF THE SOLID ROCKS.

Geology of the solid rocks.

The rocks met with in this season's work are similar to those described in last year's report, and consist of argillites, generally altered to phyllites or schists ; limestone, dark and carbonaceous where unaltered, but often altered to white crystalline limestone ; quartzite ; fine-grained conglomerate ; tuffs ; gabbro, in places perhaps diorite ; in smaller dikes gabbro porphyrite—generally mashed to a chlorite-sericite-schist (greenstone schist) ; a basic eruptive that seems to have been diabase, now represented by a reddish or yellowish weathering sericitic serpentinous calcereous schist (diabase schist) ; aplite ; pegmatite and granite. At a few points, as on Lavina mountain and Howser mountain, dikes of a basalt-like rock are met with.

With the exception of the granite and allied rocks, the above mentioned rocks are usually intimately mixed. Proceeding southward, towards Kootenay lake, the rocks gradually become more crystalline, mica and garnet are developed in the schists, the lime becomes highly

crystalline and white quartzite appears. Dikes of aplite become numerous and small faults are abundant. This increase in metamorphism appears due to the proximity of granite which, indeed, is exposed on Kootenay lake about Fry creek, and not to any increased folding that the rocks have been subjected to. In fact there seems to have been a marked diminution of the pressure about the head of Kootenay lake, the rocks being arched into a low anticline dipping eastward at the east side of the valley and west on the west side of the valley, whereas, farther north, at the head of Haley lake and Hall creeks the rocks, as shown by the lime band, are tightly folded. On the Duncan river, however, the rocks beneath the "lime dike" are highly metamorphosed. East of the river they consist largely of hornblende and glossy mica schists and gneisses, and west of the river, between it and the "lime dike," of quartzite. The "lime dike" so conspicuous at this point and north-westward gradually becomes thinner as the folding becomes less intense, and at the bend in Lake creek, sinks into obscurity.

The diabase schist which occurs in several large bands on Silver Cup mountain crosses the Lardeau about Tenderfoot creek and extends southward across Rapid, Poplar and Cascade creeks to Meadow creek basin, thus crossing the strike of the rocks at a slight angle. All around the head of Kootenay lake, as also on Lavina hill, crystalline limestone, schists and quartzite are the principal rocks. About Howser lake, schist and limestone form the bulk of the rocks, Running from Jubilee point on Howser lake to Lavina cabin on Lavina hill is a banded quartzose rock which appears to be limestone higher silicified.

Granite occurs along the Lardeau-Arrow and Slocan Lake divide. At Trout lake, it swings southeast across Five-mile creek to within, at one point, one and a half miles of the lake, then it again recedes toward the divide. On Kootenay lake it outcrops about Fry creek and for some distance south.

The rocks met with on the section along the Canadian Pacific Railway, from Glacier to Revelstoke, which Dr. Dawson named the Selkirk series, appear to be the northward extension of the Lardeau rocks. Approaching Revelstoke they become highly metamorphosed by granitic intrusions.

MINING GEOLOGY AND MINING.

Mining geology.

Along and near the summit of Silver Cup mountain, going southeastward from the Silver Cup and Triune mines, mineral occurrences are met with, but none, so far developed, equal in size or importance

the deposits of the former mines. The general character of the deposits is similar to those described in the last report.

I. X. L. claim.

The I.X.L. claim on Brown creek, over the hill from the Triune, appears to be on the continuation of the Triune lead. The vein occurs in an iron-spotted talcose schist which is probably a facies of the diabase schist. One vein runs nearly parallel with the strike of the schist but another vein runs at right angles to it. Where best exposed by development work the vein is of quartz, from one foot to one foot and a half wide, well mineralized with galena, zinc-blende, iron and copper pyrites and gray copper. The galena masses are sometimes as large as eight inches square. Crossing Brown creek valley at the I.X.L cabin is a dike or boss of diorite. It is more acidic than those observed elsewhere and may be a syenite facies of the greenstone. The Cromwell claim, in the same basin, is said to have a good showing of ore but the workings were covered with snow at the time it was visited.

On the Mabel, Alpine, I.X.L., (Trout lake slope) and Bonanza claims some work has been done on showings of ore, but these present no new features.

American claim.

On the American, near the south end of the mountain, considerable work has been done and some ore has been shipped but work has been discontinued. The ore is quartz, calcite, hornblende, and spathic iron carying galena, blende and gray copper. On the north-east face of the knob on which the mine is situated, the vein, which averages about two feet in width, strikes 235° but on the summit turns to 185°. The vein is cutting across the strike of the formation, which consists of green schists, a mixture of the diabase and greenstone schists, and phyllite. The work done includes trenches on the surface and several tunnels on both the north-east and south-east slopes of the hill.

Mineralization extends along both sides of the lime dike, or to a limited extent in the lime itself, just as in the district described last year.

Wagner claim.

The Wagner claim is situated on the divide between Haley and Caribou creeks west of the lime dike at an altitude of over 8,000 feet. The workings are on a small knoll above a glacier which has to be crossed to reach the mine. At the time of our visit, the workings were inaccessible on account of snow. The vein is situated in corrugated slates with diabase schists. A band of lime, filled with an almost microscopic network of quartz stringers, occurs in the slates of the hanging wall which are contorted and faulted by thrusts on a minute scale. The lower body consists of several veins of quartz

which unite into one mass several feet wide which splits up into small veins and stringers. The ore consists of galena with some pyrite and gray copper. The galena is cubical, sometimes fine but mostly coarse, and occurs in masses up to six inches in width. Blobs of quartz appear in the galena and, in places, crystals of quartz, up to one inch thick and two inches long, are embedded in the ore. The vein quartz is inclined to be drusy and these druses are frequently filled with ore.

Twenty feet to the south is a second vein, six inches wide, of massive galena. The workings are said to consist of a tunnel 100 feet long with a crosscut and a winze sixty feet deep.

Other claims.

At the head of Hall creek basin, in line with the Wagner is the Jewel. The workings here were also buried in snow.

The Abbot, on the Haley creek slope, and the Bannockbum, on the Hall creek side of the lime dike, have been developed by crosscuts to tap ore exposed on the surface, but no considerable quantity of ore has been exposed. There are numerous other claims along the southern part of the lime band, but little more work than that required for assessment or crown granting has been done. The inaccessibility of this portion of the district and its severe climatic conditions, in the absence of an influx of capital, have discouraged prospecting and development, but until a tonnage has been developed it is scarcely to be hoped that conditions will be materially improved. Gold is reported to have been found during the summer in a large pyrite vein on Hall creek.

On Lavina hill, between Hammill and Glacier creeks, a considerable amount of work has been done in surface stripping, tunnelling, &c., disclosing a network of veins, some parallel to and others crossing the formation, which consists of phyllites, bands of limestone and a few bands of the diabase schists. The banded silicious rock spoken of as being probably altered limestone, is found in the centre of the mineralized area. The ore, which is largely galena with some pyrite and chalcopyrite, shows a predilection for the limestone, occurring usually either in a limestone band or near one. The gangue in some of the veins is white milky quartz, in others calcite. The veins were from a few inches to four feet in width. The galena which may be coarse cubical or fine wavy, occurs scattered through the gangue in masses up to one foot in diameter.

Some prospecting was in progress on the Poplar creek slope of the Lardeau from Tenderfoot creek to Meadow and Cooper creeks, the same formation extending throughout.

Swede group.

On the Swede group, at Poplar creek, a considerable amount of surface work has been done which has thrown a good deal of light on the occurrence of the gold. The rock is made up largely of what we have been calling diabase schists, in dikes with thin bands of phyllite between. Near the centre of this mass is a band of rather massive green schist. In the diabase schist and the phyllites is a network of quartz veins varying from almost microscopic stringers to veins several feet wide. While in a general sense these are either parallel to or at right angles to the formation, in detail they vary in dip and strike, anastomose, &c. They carry galena, chalcopyrite, siderite, pyrite and arsenopyrite. The quarts is watery, smoky and milky. The smoky quartz bears the coarsest gold and the watery is generally richer than the milky quartz. The larger veins as a rule are much less heavily mineralized, while the tiny veins are frequently very rich. The diabase schists and the phyllites, besides being full of the small quartz stringers, are impregnated with pyrite and arsenopyrite, which weather to yellow or red oxides of iron respectively, giving the country rock a spotted appearance. Where these crystals were large and are now weathered, wire, sponge and flake gold may sometimes be detected. Evidently the arsenopyrite is the heaviest gold carrier. The country rock, therefore, when spotted with iron oxide, carries gold values, especially near the stringers and veins of quartz, where the sulphides are apt to have been present in greatest quantity. Samples which we took at a number of points over a wide area gave colours by panning. The gold in the rocks is extremely fine. The richer, smaller veins, on account of irregularities and faulting, would be difficult to mine, but if, as there is reason to hope, the diabase schist and the phyllite carry pay values, at any rate near the veins, the prospects for successful operation are greatly increased. Samples of fresh unpromising looking schist assayed by Mr. Connor of this survey, gave negative results. The gold is, therefore, not evenly disseminated throughout the full extent of the schist.

Cheap mining.

The cost of mining this rock should be low. It is easily worked and although fresh and massive when taken out, it weathers rapidly, so that after a few months exposure it may be crumbled in the hand. In what rock I saw exposed, this weathering appeared to have freed the gold from the arsenopyrite, but this point should be tested on rock from a greater distance below the surface. If the rock itself is found to carry anything like pay values, it should be submitted to first class metallurgists and mill men to determine the best method of saving the gold. On account of its fineness it is possible that cyaniding on a large scale might prove the least expensive process.

Nothing was being done on the Lucky Jack, owing to litigation. Here there is an area of diabase schist impregnated with arsenopyrite crystals, as on the Swede Group, which is also auriferous, as is proved by panning.

On Marquis and Gilberts claims, on the north-west side of Poplar creek, the same schist is also arsenopyrite-bearing and auriferous. Both north-westward and south-eastward from Poplar the same schists, spotted with red oxide of iron, from Tenderfoot creek to the branches of Meadow creek, were observed at different points, so that if it prove to contain gold in commercial quantities there is an extensive area over which it may be successfully prospected for.

The Spyglass claim, about twelve miles up Poplar creek, described in last years report, has been sold to a company and is being developed.

Mother Lode claim.

On the Mother lode claim, situated on the north-west side of Poplar creek, about two miles up, there is a strong looking vein exposed. It occurs in a band of graphitoid slate between dikes of the diabase schist. The width is about fifteen feet and, with the exception of about four feet, is well mineralized with galena, blende and pyrite, carrying, it is said, good values in gold, silver and lead.

Placer mining.

The experiment at placer mining on a bar below Poplar creek, which was mentioned in last years report, was unsuccessful. Better results are said to be obtained in Lardeau creek, near Trout lake where a small force is at work. Preparation are said to be under way for somewhat extensive operations.

Silver.

The silver mill, built last year at Five-mile on the south fork of Lardeau creek, to treat the second grade ores of the Silver Cup and Nettie L. mines has been running all the summer. This plant, which was described in last year's report, the Manager states to be working smoothly and to have proved itself well adapted to the ores it has to treat, in which the silver is carried by gray copper. The galena and pyrite, which contain the gold, are separated on buddles from the gray copper and blende, and sent to the smelter with the high grade ores; the remainder goes through the mill. It is expected that ten dollar ore will be successfully treated by this method.

Marble.

Eight miles from Lardo, on the Trout lake branch of the C.P.R., is a quarry in the crystalline limestone operated by the Kootenay Marble Co. of Nelson. The stone is of two varieties, white and blue and white banded. It presents a pleasing appearance and is said to take a fine

polish. The pronounced systems of jointing enable blocks three or four feet by two feet thick to be taken out. The stone is adapted for both building and ornamental purposes. The rock is said to burn to a good lime and three pot kilns of thirty tons capacity were being constructed to utilize the waste and culled stone.

RANCHING.

Some land suitable for ranching and fruit raising occurs on the Lardeau and lower part of the Duncan valleys and, where a start has been made at cultivation, the results have been excellent.

FORESTS.

Fires did a great deal of damage to the forests during the summer and also to some of the mines. Some of the fires may be unavoidable in a dry season but it is certain that if the public realized the value of the forests, steps would be taken for their preservation and fires would be much less widespread and frequent. A large number of the fires noticed this summer started where there was a desire to have the ground cleared for ranching or prospecting.

Fortunately, the timber in the Duncan valley has in large part been preserved and during the season several gangs of timber cruisers have been up locating berths.

Larix, Lyellii, the high altitude tamarac, were noticed in abundance on Lavina hill near and up to timber line.

Geology of the Western Part of the International Boundary (49th Parallel).

By Dr. R. A. Daly.

Area covered.

On May 1, I left Ottawa to continue the preparation of a detailed geologic map and structure section through the western Cordillera along the line of the 49th parallel of latitude. I returned to Ottawa on November 1. From June 27 to August 5, leave of absence having been granted, I gave a course of lectures on physical geography at the University of California. During May and June the survey of a belt five miles broad and forty-five miles long, between Midway and the Similkameen river, was completed. This belt lies north of the boundary and is limited on the south by the International line. The second part of the season was occupied with the similar survey of a belt sixty

eight miles long and about five miles wide, between the Kootenay river at Port hill, Idaho, and the eastern edge of Tobacco Plains.

The total length of the boundary belt examined this season is thus about one hundred and ten miles. There now remain two sections of the belt to be studied in order to complete the whole 425 linear miles of survey across the mountains. One of these sections lies between the Similkameen river and Chilliwack lake and measures some ninety miles in length ; the other section, about fifty-five miles long, extends from Tobacco Plains to the eastern foot of the Rocky mountains proper.

My best thanks are due to Mr. W. F. King, Boundary Commissioner for Canada, for permission to use photographic copies of the manuscript topographic map of the belt between Midway and the Similkameen river. This map was made by Mr. W. F. O'Hara for the Commission. Special thanks are also due to the authorities at Washington who most kindly supplied me with photographic copies of the topographic maps of the boundary belt extending from Port Hill to the Great plains of Alberta, a distance of 110 miles. These excellent maps were constructed by Messrs Barnard, Reaburn, Hefty and Truax, United States officers of the International Commission.

Value of topographic maps in geological Field-work.

This season is the first in which I have been supplied with topographic maps on a satisfactory scale and of sufficient accuracy for thorough geological mapping. The experience of the four years engaged in this boundary work emphasizes the futility of attempting to combine, in one field season, the topographic and geologic surveys of a mountainous region. The topographic map resulting from such a combination of forces may indeed be a permanent asset to the government and the people, but it is safe to say that on account of complexity of the average mountain range, the geologic map constructed along with its topographic base, is, from a *structural* point of view, necessarily very imperfect, if indeed it be not quite worthless. Such a geologic map cannot be considered a permanent asset. The same area must inevitably be studied again before its map can be placed among the standard geologic maps of a government survey. This conclusion does not apply to reconnaissance surveys which can never be used in the determination of detailed rock structures except in an incidental way. On the other hand, the structure and origin of the rock formations in any area form the very kernel of the truth which should be expressed in a standard geologic map issued by a government for the benefit of the people. My own experience in this agrees with that of every other Dominion geologist working in the mountains as well as with that of the many workers in the mountains of Europe, India and the United States. True economy teaches that topographic parties should pre-

cede the geologists in such regions. The geologist must have his topographic map in his hand if he is to attack with confidence the problems of rock structure, rock origin and ore genesis.

A special economy of time and money resulted this season from the fact that I possessed the topographic map of the boundary belt. Through August and September smoke so obscured the country that a topographic corps must have remained idle. Triangulation was quite impossible; other branches of the work must have been almost as completely restricted in a rugged region where one could see but a few hundred yards in any direction. Nevertheless, with the Commission topographic map at my disposal I was able to map geologically in detail nearly 300 square miles of the belt. Without the aid of that map, half of the field season would have been lost, though the expense of the pack train and assistance were as great as during the times of active field operations.

Work carried on west of Midway.

A rapid reconnaissance of the belt west of Midway was made in 1902, and a brief account of its geography and geology was given in the Summary Report of the Geological Survey Department for that year. The work this season consisted in developing the details of rock distribution and structure outlined in the former summary. It seems inadvisable to present those details here, in advance of the publication of the final report and map relating to the district. One important determination should, however, be mentioned. In the 1902 summary it was stated that a series of gneisses, mica schists and more granitic rocks seemed to form the oldest group of formations in the area. This year, with more time given to the study of contacts, it was definitely proved that the whole series belongs to a single great intrusion of acid, igneous magma. The mass varies in composition from true granite through granodiorite to a very acid quartz diorite. The whole forms a single batholith. It is exposed liberally on both sides of the wide valley occupied by Osoyoos lake. On the west side of the lake the rocks are still generally granitic in structure, but on the east side the granitic structure has been changed by orogenic pressure into gneissic and schistose structures. Zones of intense shearing in the granites are now occupied by wide bands of fine-grained gneisses and highly micaceous schists.

The field-work of the second part of the season continued, to the eastward, the section mapped in 1903. The camp was outfitted at Port Hill, Idaho, and disbanded at Gateway, Montana. The boundary belt examined crosses the whole of the Purcell mountain range, that division of the Selkirk system which lies between the great eastern valley of the south-flowing Kootenay river and the equally important

western valley of the same river as it again crosses the 49th parallel this time flowing north from its big bend in the state of Montana.

Topography of the Purcell range.

The drainage of the belt is entirely tributary to the Kootenay. A small portion of the drainage is directly carried into that river at the extreme western end and extreme eastern end of the belt. Most of the creeks, however, empty into the Yahk and Moyie rivers, which themselves discharge into the Kootenay.

Since the valleys have all been deepened by erosion, the strength of the topography is dependent on the altitude of the Kootenay river above sea-level. At Port Hill the river is about 1,750 feet above sea; at Gateway, its surface is about 500 feet higher. The height of the highest mountain measured by the commission topographers is 7,518 feet. The total range of vertical relief is, therefore, somewhat more than 5,700 feet. With the exception of the imposing four thousand-foot cliff facing Port Hill, the mountain slopes are relatively gentle; there is seldom an approach to the ruggedness of the Selkirks west of Port Hill. The slopes are those characteristic of mountains that have long suffered the attack of general erosion. They may be called the slopes of topographic maturity.

Occasionally through the season the smoke lifted sufficiently to permit of somewhat distant views. The impression thus gained was supplemented by a study of the Commission map of the belt. The result has been to strengthen a generalization which may be made regarding the greater part of the topography in the whole stretch along the International line from the Great Plains to the Pacific ocean. In the Coast range, in the Gold range and Selkirks proper, the mountain summits were very generally found to accord roughly in altitude; locally, they are nearly uniform in height. In the Purcell mountains the same rule holds fairly well, and Mr. Bailey Willis has emphasized the law as obtaining in the range of the Rocky mountain front. This accordance of summit levels has now come to be one of the principal criteria, if not the sole criterion, for ancient peneplains which, by several authors, are supposed to have once extended over vast areas of the western Cordillera of the United States and Canada. The summit level accordance in each region is, by this theory, supposed to be due to inheritance from the surface of a former great, almost perfected plain of denudation. The existing valleys are supposed to have been cut *in intaglio* beneath such a peneplain after it was warped up many thousands of feet above its earlier position near sea level. There are, however, alternative explanations of the phenomenon which involve quite different histories for these western ranges. The problem is not simply physiographic or geographic in its bearings. A decision

as to the true explanation of this widespread phenomenon is of primary importance to the interpretation of Tertiary geology. Since leaving the field, I have attempted a critical analysis of the subject; a paper embodying the principal results will appear in a forthcoming number of the Journal of Geology.

Glaciation.

Along the 49th parallel the Purcell range was almost completely buried beneath the ice of the Glacial period at the time of maximum extension. The upper limit of general glaciation was fixed at 7,300 feet above sea-level at summits occurring in the middle of the range. The Cordilleran ice-cap had a southerly average direction of flow in this part of the boundary belt as it had also throughout the 200-mile belt stretching from Port Hill westward to the Okanagan mountains. In the closing stages of the glacial period, the general mantle of ice was exchanged for the more limited covering of local cirque glaciers and large valley glaciers.

The largest of the valley glaciers were those filling the Kootenay valley at its eastern and western crossings of the boundary, the one glacier terminating in Montana, the other in Idaho. Heavy deposits of boulder clay and other material were laid down in the widely opened valleys at Port Hill and Tobacco Plains. Elsewhere in the belt, glacial deposits are thin, discontinuous and unimportant. A number of cirques were found among the mountains that showed altitudes greater than 6,500 feet. The highest mountains are locally benched by the head wall growth of these cirques, showing specially rapid glacial erosion about those summits. As generally observed in the western Cordillera, the attack of cirque glaciers is most manifest on the northwest, north, northeast, and east flanks of the mountains. In many cases a decided asymmetry characterizing summits may be traced to such differential erosion which is controlled by the varying exposure of slopes to the sun's rays.

The tree-line was found to average about 7,200 feet in altitude above sea. It is higher than at any point yet observed along the boundary, between Port Hill and the Pacific shore. Apparently owing to the unusually siliceous nature of the rocks underlying the belt, the soils are thin and relatively poor. Much of the timber is, therefore, not of high grade. Undergrowth is, however, more abundant than I have seen it on the boundary except on the Pacific slope of the Coast range. So thick is the underbrush that pack-train travel is restricted to the trails. For the same reason, progress on foot is generally slow and arduous. Had it not been for the excellent trails cut by the topographic parties, it would, in fact, have been impossible to cover the whole belt in one season.

Bed-rock geology.

The bed-rock geology is, in some respects, simple, when compared to that of the long section from the Kootenay valley at Port Hill to the Similkameen river. To the west of that valley, sedimentary formations are areally less extensive than igneous formations; the structures are those due to magmatic intrusion, volcanic action and the intense crumpling, and metamorphism of usually re-crystallized sediments. From Port Hill eastward, the staple formations are well-bedded sediments, tilted generally to moderate angles of dip, never overturned, and relatively seldom disturbed by igneous intrusions.

These sediments include an extraordinary thickness of conformable quartzite and argillites, the former dominating. The whole group has, on lithologic and stratigraphic grounds, been divided into four series. The lowest series, the Creston quartzite, is composed of 9,500 feet of wonderfully homogeneous, highly indurated, thick-platy, gray sandstones. Overlying the Creston quartzite is the Kitchener quartzite, a second series of ancient, hard sandstones and interbedded argillites carrying a high proportion of disseminated iron oxides. These rusty rocks are, relatively, thin-bedded and bear very abundant sun-cracks and ripple-marks on horizons ranging from top to bottom of the series. The thickness of the Kitchener quartzite is about 7,400 feet. It is itself conformably overlain by at least 3,200 feet of thin-bedded, red and gray argillaceous strata which, together with subordinate thin beds of light gray quartzites, make up the formation I have called the Moyie argillite. The youngest member of the four sedimentary divisions is the Yahk quartzite, composed of white to gray indurated sandstones bedded in thin to medium courses. The top of this series was not seen; the whole thickness observed is 500 feet. The total observed thickness of conformable strata is nearly twenty thousand feet. Neither the bottom of the Creston quartzite nor the top of the Yahk quartzite appearing in the sections, it is certain that this great thickness is only a minimum thickness.

The westward extension of this sedimentary series was mapped and measured during 1903 in the boundary belt immediately west of the Kootenay at Port Hill. There the strata corresponding to the Creston quartzite are conglomerates, grits and coarse sandstones as well as fine-grained sandstones, and are thus, on the whole, notably coarser than they were found to be anywhere in this season's belt. The equivalent of the Kitchener quartzite is less strongly charged with argillaceous beds than is the Kitchener quartzite east of the Kootenay. These facts point to the conclusion that the shore-line, whence the materials composing the stratified formations were derived, lay to the

westward and that the open sea and deeper water lay to the eastward of the western crossing of the Kootenay river at the International boundary.

This conclusion was strikingly confirmed on carrying the section towards Gateway. It was found that both the Creston quartzite and the Kitchener quartzite gradually became charged with interleaved beds of calcareous quartzite, calcareous argillite and siliceous limestone, betokening open-water conditions during the formation of these sediments. In fact, the transition of the great quartzite series to certain of the more calcareous formations of the Rocky mountains has become the best working clue to the correlation of the rocks of the Purcell range with those of the Rocky Mountain Front. If this conclusion be confirmed by the further eastward extension of the boundary section next year, it will mean that the Creston and Kitchener quartzites and, possibly, also the Moyie argillite and Yahk quartzites are of Pre-cambrian age. The nearest relatives of the Creston and Kitchener quartzites in the Rockies are respectively the two thick members of the Altyn limestone delimited by Mr. Bailey Willis, who, in the year 1901, carried out a reconnaissance survey of the boundary belt on the Montana side.* No fossils have, as yet, been found in these old rocks of the Purcell range, but fossils of so-called Algonkian age were discovered in the Altyn limestone.

Igneous rock formations.

The only other formations found between Port Hill and Gateway are of igneous origin. One of them, locally developed in the upper part of the Kitchener quartzite, is a contemporaneous series of amygdaloidal lava-flows and volcanic tuffs aggregating 500 feet in thickness. These rocks are well exposed on the first high ridge west of Gateway, and again at the edge of the Kootenay river floodplain near the village. Eruptive material, occurring on a very much larger scale is represented in a number of thick sills of gabbro intruded into the Kitchener quartzite and upper member of the Creston quartzite. These sills range from 100 to 2,500 feet in thickness. Some of them can be proved to hold their thicknesses very steadily over wide areas. Field evidence seems to show that the intrusions took place before the sediments were significantly disturbed from their original horizontal position.

Faults and folds.

The sedimentary formations with the lava and gabbro sills together made an exceptionally rigid mass of rock, which was capable of transmitting the thrust of Tertiary and earlier mountain-building forces, though the mass itself refused to yield to that force in the same manner as the weaker, now mashed and contorted formations west of the Purcell

* Bull. Geol. Soc. Amer., vol. xiii., 1902, p. 305.

range. The uplift of that range has led, rather, to normal faulting and subordinate overthrusting superimposed on a few broad, open folds. In the sixty miles between the two crossings of the Kootenay river, fourteen normal faults of large throw, three thrust faults, three faulted anticlines and three faulted synclines have been observed. Structurally, as well as lithologically, the Purcell range is thus a Cordilleran division transitional from the Selkirks proper to the front range of the Rockies as these ranges are developed on the 49th parallel.

In a number of cases the structure has had manifest control over the present topography of the range. Seven of the meridional valleys are clearly located on normal faults. The wide valley of the Kootenay at Port Hill, and apparently again at Tobacco Plains, has been opened out on zones of normal faulting, in each case the faults having meridional trend.

The Moyie Sill.

In the present summary report of field work it is premature and inappropriate to go into detail regarding either the general geology or the petrography of the formations on the belt, but one special phenomenon deserves mention as of possible importance in bearing on the general principles underlying the interpretation of the igneous rocks throughout the boundary section. The thickest of the great gabbro sills above mentioned is well exposed on an isolated mountain forming the residual of a monoclinal fault-block immediately west of the point where the Moyie river crosses the boundary. Owing to its importance both in volume and relations, this igneous body may be given the special name of the *Moyie Sill*. It has been thrust into the Kitchener quartzite on a horizon situated near the middle of that formation. The sill, closely following the bedding plane, and retaining its thickness of approximately 2,500 feet throughout, has been traced along the strike a distance of about five miles. The main mass of the intrusion is a hornblende gabbro, often containing accessory quartz interstitially developed. The heat of the magma has rifted off thousands of fragments of the quartzites. These fragments are seen to be in all stages of solution in the magma, which, on account of its exceptional volume, retained sufficient thermal energy to continue the shattering and digesting of the invaded sediments for, apparently, a long period. The composition of the magma has, therefore, been signally altered in the sense of having grown more siliceous than it was originally. The products of the digestion are, for the most part, segregated along the upper contact of the sill where, instead of gabbro, a 200-foot zone of light gray crystalline rock was found. Microscopic examination shows this zone to be composed of a highly acid biotite granite passing into granophyre with characteristic micrographic structure, and also, by

rather sudden but definite transitions, into the underlying hornblende gabbro.

The potash of the granite is contained in the essential orthoclase, soda orthoclase and microperthite, as well as in abundant essential biotite. That oxide, along with other constituents of the essential minerals, was derived from the quartzites which are slightly feldspathic and occasionally argillaceous, and which also bear minute scales of mica in considerable amount. The specific gravity of the quartzite varies from 2.68 to 2.75; that of the normal gabbro from 3.00 to 3.03. It is highly probable that the fragments of quartzite sank some distance into the gabbro when the latter was molten and then less dense than the solid quartzite. The acid material derived from the dissolving, sinking fragments was, nevertheless, evidently less dense than the gabbro magma, and rose to the upper contact of the sill. In this way, by simple gravitative differentiation, coupled with the assertion of those definite laws of molecular attraction which control the formation of biotite-granite in general, a new crystalline rock has been developed on this upper contact by the mechanical and solutional action of gabbro on somewhat feldspathic quartzites and subordinate interbedded argillites. As expected, acidification is seen at and near the lower contact, where abundant quartz is interstitially and poikilitically developed in the gabbro; yet there the effect is relatively so limited as hardly to change the usual dark colour of the gabbro. Exomorphic contact action seems to be as pronounced at the lower contact as at the upper. The absence of a zone of granite at the lower contact is believed to be due to the process of gravitative differentiation. The excess of silica actually found at the lower contact is attributed to the solution of the quartzite while the sill was in the viscous condition immediately preceding the crystallization of the whole mass.

A similar special acidification of the internal upper zones of contact was observed in several others of the sills in the belt. The considerably smaller volume of those sills naturally involved a much less striking acidification of the gabbro magma than that just described for the Moyie sill.

Secondary origin of granite.

These observations illustrate what is believed to be a case of the formation of granite by hypabyssal assimilation of siliceous sediments by a gabbroid magma. The phenomena in the Purcell range are markedly similar to those so fully described by Professor W. S. Bayley* and by Professor N. H. Winchell† at Pigeon point and many

* Bull. No. 109, U.S. Geol. Surv., 1893.

† Minnesota Geol. Surv. Reports.

other localities in the state of Minnesota. There is another suggestive parallel in the likewise ably discussed relations of gabbro and granophyre, in the Sudbury district, Ontario.‡ The extremely simple structure and relations in the case of the Moyie sill suggest the legitimate extension of this secondary theory of granite to the much more important case of truly abyssal assimilation of siliceous and aluminous sediments and crystalline schists by basic gabbro magma, whereby granite and allied rocks may be conceived as secondarily produced on the scale of intrusive stocks or even great batholiths.*

The experience of the season clearly points to the conclusion that there is no hope of the discovery of important mineral deposits, except in the case of beds or veins of iron ore similar to the well known deposits at Kitchener, on the Crow's Nest division of the Canadian Pacific Railway. It is possible that such ore may be found in the Kitchener quartzite, where it crops out in the boundary belt, but none on a commercial scale was discovered this season. Quartz veins are notably rare; with very few exceptions these occur only in the gabbro sills or along the contacts of the sills. The veins are always narrow, and show no promise of giving, in assay, any important content of the precious metals.

The thinness of the soil and the general absence of level ground are such as to discourage settlement for agricultural purposes, except in the Kootenay valley, at Port Hill, and at Tobacco Plains. Permanent farms are being cleared on the wide bench east of Port Hill. The extraordinary drought of the season caused an almost complete loss of crops to the farmers settled near Gateway, except in the rare cases of those who command running water for purposes of irrigation.

Natural History of the National Park.

By Professor John Macoun.

Introduction.

At the date of my last summary report I was engaged on Part III of the Catalogue of Canadian Birds. With the help of Mr. J. M. Macoun, my assistant, the proof was read and the whole work, which extends to 733 pages and includes 650 species and varieties of birds, was completed by the beginning of June. The index, prepared by Miss Marie Stewart,

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‡ Rep. Bureau of Mines, Ontario, 1903 and 1904, A. P. Coleman; Geol. Surv., Canada, Ann. Rep., vol. 14, Pt. H, 1904, A. E. Barlow.

* Compare R. A. Daly, The Mechanics of Igneous Intrusion, Amer. Jour. Science, vol. xv., 1903, p. 269, and vol. xvi., 1903, p. 107.

covers twenty three pages ; by its aid, any bird in the Dominion, under whatever name it may appear in the Catalogue, can be easily found, and our knowledge of its distribution and breeding habits can be at once referred to. The amount of time and care entailed in the preparation of this work has been enormous, and, but for the constant help I received from my assistant, it could not have been carried to a successful completion in so short a time.

Thirteen years ago the writer spent a summer at Banff, (Alta.) studying the flora and fauna of the Rocky Mountain Park. The outcome of that season's work was the establishment of a museum at Banff. A collection of birds was mounted by the taxidermist of the Geological Survey, and one of plants was prepared : both these were placed in the museum which was established in 1892. Since then, the Park has been extended to the " Great Divide " on the border of British Columbia, and the Yoho Park on the British Columbia side of the " Divide " has also been placed under the jurisdiction of the Superintendent of the Rocky Mountain Park, so that at present the Park extends from Canmore, on the east, to some distance beyond Field, on the west, on both sides of the railway.

Banff museum

Owing to the increasing number of visitors, it became necessary to enlarge the museum, and last year a fine building was erected and well fitted up for museum purposes. Very little new material, however, has been added to the collections of the fauna and flora since the original consignment from this Department.

On account of the enlargement of the Park and the necessity for additional knowledge of its productions and inhabitants, I was instructed to make a further exploration, chiefly of the western part about the " Great Divide," and this I proceeded to do last season. The additional specimens necessary to complete the botanical collection are now on hand and will be added to the original consignment next spring. It is intended to complete the Rocky Mountain birds and mammals and, besides, to place in the museum as large a collection as possible of the game-birds of the prairies, including waders of all kinds, ducks and other swimming birds. The larger hawks and owls will be so set up that visitors from all parts of the world can see what we have in the matter of sport to give them.

After finishing the proof-reading of the Bird Catalogue I started for the Rocky mountains on June 17 and, after spending two days at Calgary, went on to Banff, where I spent three days going over the collections there with Mr. N. B. Sanson, who has charge of the museum and who, I found, had added many fine specimens to the original col-

lection. The plant collection was in excellent order, but the collection of birds needed the hand of a taxidermist. Mr. Douglas, the Superintendent, saw the necessity of having the birds cleaned and, in some cases, replaced by better specimens.

Laggan camp. I then went on to Laggan and established myself in the camp of Mr. A. O. Wheeler, who, for the next three months, gave me a home with his men and helped me in every possible way. Very frequently, rare specimens, collected on the highest mountains, were brought down by the men, and enabled me to add to my own collections.

From June 26 to 29 I collected around Laggan, and on the morning of the 29th started up the Pipestone on foot, with Mr. Wheeler's pack train. The first day we went about eight miles and camped; the next day Mr. Wheeler and his men ascended a mountain while I botanized at the base. This was the usual procedure through the summer. The camp was moved every second or third day. By July 3rd we had reached the source of the Pipestone and camped in the last grove of trees. Around us were snow-clad mountains, and nearly all the ground, except the steeper slopes facing south, was still covered with the winter's snow. For the last few miles we passed through a veritable flower garden. The ground was covered with five species of spring flowers growing in the greatest profusion and just in their prime. In many places were white Globe flowers *(Trollius laxus)* covering a res of ground and often with over twenty blossoms springing from the same root. Near by, could be seen great patches of bright yellow which were made by the flowers of the Mountain Dog's Tooth Violet *(Erythronium giganteum)*. Scattered among these, or growing in masses by themselves, were the Spring Beauty *(Claytonia lanceolata)*, the Mountain Buttercup *(Ranunculus Eschscholtzii)* and the Mountain Anemone *(Anemone occidentalis)*. The above were the leading species, but a score of others could be enumerated. Our camp was pitched above the real spring and the flowers here were truly alpine, many of them not being spring flowers at all. Dead stalks of *Arnicas*, *Erigerons* and other composites were around, everywhere, but not a bud was seen. Occasionally on a sunny spot one would stumble on a patch of the Mountain Saxifrage *(Saxifraga oppositifolia)*, or the Moss Campion *(Silene acaulis)* or, high up amongst shingle, the first flowers of *Oxytropis podocarpa*. The *Drabas* showed a few flowers both yellow and white, the former being *Draba alpina* and the latter *Draba nivalis*.

Red Deer river. On the 4th I climbed the eastern side of the valley and was able to look down on the source of the Red Deer river, which, at this time, was still encumbered with snow. Almost under my feet and 500 feet

below reposed a small lake which still retained its icy covering. The silence of nature was unbroken by bird or beast, but, occasionally, water was heard to trickle, and by noon the southern slopes were alive with little rills. In the late afternoon, water could be seen, glancing in the sun as it descended from the heights ; the creek below our camp sent up an ever-increasing sound as the volume of water rushing through it grew. The sun sank behind the mountains to the west ; slowly silence settled on the scene and by morning all movement of water had ceased. Day by day throughout the summer, this melting, flowing, rushing and freezing, kept on, and even late in September was being repeated at higher elevations.

Pipestone valley.

Work was finished on the 5th and we descended over 1,000 feet into the Pipestone valley, which we now found to be a series of turbulent streams of milky-looking water. These soon became one stream, and a rushing river, difficult to ford, was the result. Large collections were made on the lower slopes. As we worked our way down stream we found that the spring was fast passing into summer ; and by the time we reached Laggan on July 10, having been only twelve days absent, summer had usurped the place of early spring. The species scarcely in bud on June 29 were in seed July 10. Collecting was resumed for a few days on the mountain slopes around Laggan and in the Bow valley ; on the 16th I changed my headquarters to Lake Louise. Laggan is 5,037 feet above the sea and Lake Louise is 638 feet higher ; the mountains rise on both sides of it at least 4,000 feet above the lake. This makes the vicinity of the lake an ideal collecting ground, and as there are horse trails in all directions there is no difficulty in getting about.

Lake Louise.

Very extensive collections were made at Lake Louise and its vicinity. Lists were made of plants that ascended above 6,000 feet and a surprising uniformity was noticed in the occurrence of the same species on all the mountains at the same heights.

Ascents were made on "the Saddle" east of Mount Fairview, on "the Moraine" at the base of Mount Victoria, on Mount Niblock, the Beehive and Mount St. Piron. Many alpine species, not found to the east of Castle mountain, were collected, and common things at Banff were altogether absent. The flora of Lake Louise itself is quite different from that of the mountains around it, being below the 6,000 feet line, which seems to be the line where a marked change takes place in the vegetation. The forests between Laggan and Lake Louise have hitherto escaped fires, and to this fact much of the attractiveness of Lake Louise is attributable. Much of the spruce *(Picea Engelmanni)*

is very fine and in many places attains a good size and has a tall straight trunk.

Cascade creek.

After completing my work at Lake Louise I again joined Mr. Wheeler's camp which was now near Hector on the west side of the divide. I started work here on August 1, and remained in that vicinity until the 19th. Four days were spent at Lake O'Hara and Lake McArthur at the head of Cascade creek, which enters Lake Wapta at Hector. A good horse trail leads from Hector to Lake O'Hara, eight miles distant from the railway and about 7,000 feet above the sea. Between 500 and 1,000 feet higher up is Lake McArthur. This lake is above timber line and rather south of the divide leading into Otter-tail creek. Being above timber line it remains covered with ice until late in the season. On the date of my visit, August 10, there were six icebergs floating in it and as its waters were very transparent it was possible to see the bottom at a great depth. A large glacier enters the head of the lake and it was from this that the icebergs had broken off.

Mount Schaeffer.

On the south side, a glacier on Mount Schaeffer discharged quantities of ice which, falling from a great height, were very much broken up before reaching the lake. Its outlet is obscured by morainal debris but its discharge forms the source of Otter-tail creek on the north-east. McArthur's pass and the vicinity of the lake at this time might be called, with truth, an alpine flower-garden. About twenty species were growing in the greatest profusion. Yellow, red, blue and white were the prevailing colours and the leading flowers were Arnicas, Erigerons, Castillejas, Saxifrages and Asters. Indeed, these genera are the producers of the beautiful flowers spoken of by all mountain climbers during August, and are not represented on the higher summits nor in the spring gardens of late June and July.

Hector.

The vicinity of lake Wapta at Hector occupied me both before and after my visit to lake O'Hara, and excursions were made to Sherbrooke lake and other points in the vicinity. On August 13, I ascended Mount Paget and made a complete list of the species. As usual, the flowers on the summit were, without exception, the same as those at 8,000 feet on the east side of the divide.

On the 19th I walked from Hector to Field. Next day I walked out seven miles to Emerald lake, where the camp was pitched. The descent from Hector (Alt. 5,207 feet) to Field (Alt. 4,064 feet) completely changed the flora and now the woods seemed to be filled with plants left at Banff and others found at Glacier in the Selkirks. The road between Field and Emerald lake passes, for the greater part of the distance, through a young forest of spruce, Douglas fir, Mountain

balsam, fir and pine. All the trees are tall and beautiful to look upon and range from four to sixteen inches in diameter. Around Emerald lake the forest is old; many of the trees run to three feet in diameter and all are tall and mostly sound. Should a fire ever take place anywhere between Field and the Lake, all the beauty of the scenery would be destroyed and the Yoho Park, instead of being, as it is, the great attraction for tourists, would become an eye-sore to be shunned.

After being settled in camp on the shore of the lake, excursions were made in all directions and Mounts Burgess and Wapta were examined and their productions noted. On September 2, men and horses ascended the trial from Emerald lake to the summit of the Yoho pass. Eight days were spent in the Yoho valley; each day, ascents were made up to the glaciers, and the vegetation was noted. As usual, the high altitudes produced the same species, and, the collecting season being over, I reluctantly returned to Emerald lake on the 11th, went down to Field and, next day, proceeded to lake Louise to settle up my business; then on to Banff for a few days, and, gathering up my collections at Calgary, started for Ottawa, reaching there on the 29th.

Since my return from the field, I have been almost constantly occupied with increased correspondence and the naming of specimens from all parts of the country, and have found no time to arrange the material brought from the field. This will be determined during the winter.

During the year 932 letters have been written.

The Cascade and Costigan Coal Basins and their Continuation Northward.

By D. B. Dowling.

The field work for the past season consisted, mainly, of topographic surveying to extend the map of the National Park, north and south, on the line of the band of coal-bearing rocks of the Bow River valley.

I left Ottawa on the first of June to meet my assistants, Messrs G. S. Malloch and F. C. Bell in Winnipeg. We then proceeded to Morley, where the horses had been wintered and, having got together the camp outfit, commenced work in the country south of Canmore.

The field work of the previous season was devoted mainly to a study of the coal measures of the Bow valley and their continuation up the

Topography south of Canmore.

Cascade river. This series has been called the Cascade coal basin, but as it extends both north and south of the part already mapped and beyond the limits of the topographic map made by the Interior Department, it seemed necessary to add to the latter, to illustrate the southern continuation as far as the Kananaskis river and northward as far as the basin extended or time permitted. The photographic method seemed the most expeditious and a photo-theodolite of the Bridges-Lee type was ordered. This not being delivered in time for the first part of the field work, a small transit was used and sketches were made instead of photographs.

As the area to the south was not large, points were selected as stations from which convenient areas could be overlooked. These stations were connected, as best we could, with known points on the map. Stations on each side of the Rundle range, from Pigeon mountain westward to those south of the Spray lakes, were occupied.

Wind mountain, one of the highest in the district, was not ascended, a convenient point being found on its northwest slope. The highest point of this group lies four and three quarter miles almost directly south of Wind mountain and has an elevation of 10,200 feet.

The geologic features were noted on our sketches, so that the map could be coloured as far as the topography would allow. Several visits were made to the new coal mines now being developed at Bankhead, five miles east of Banff; the progress in the tunnels was watched with interest, it being expected that the strata might, in places, as at Canmore, be badly bent, faulted or crushed.

After finishing the work planned, south of Canmore, we moved to the Cascade river and made excursions to the east of this stream, to further outline the geologic features. A visit to Minnewanka lake was included, as well as a climb to the summits of the hills at the north end of the Cascade mountain, to observe the strata of the face of the Vermilion range and of the intervening valley. On August 1st the photo-theodolite arrived at Banff and we immediately posted north.

Photographic survey north of Panther R.

Two reference points on the topographic map, near its northern limit at Lat. 50° 30′, were used as the ends of a base, and a system of small triangles was carried northward to near the Red Deer river. A few points were also taken on each side of the valley of the Panther river, east of the continuation of the Cascade basin. The Palliser range, which is a continuation of the mountains along the eastern side of the Cascade basin, is found to have another coal basin developed on its eastern

flank, commencing south of the Panther river. This extends northward and crosses the Red Deer river, while, still farther to the east, past another mountain range, a triangular area of the same coal-bearing rocks occupies a position a few miles to the northward of the one noted above. The two streams, Panther and Red Deer, which here cut transversely across the mountain ranges, give sections of three coal bearing basins having their maximum width on the Panther river.

The most easterly of these basins was prospected several years ago; a seam of coal was discovered and the location applied for. This is locally known as the Costigan seam. A visit of five days to this locality was made by us and a part of the area was examined.

By using the pickets which still remained from a traverse of the stream by Mr. McLatchie, D.L.S., several stations were fixed on the surrounding hills and a series of photographs was taken. A small topographic map has since been constructed to accompany the notes bearing on our examination. This is appended to the present summary of our proceedings for the summer.

Forest fires.

Large fires in British Columbia, which did incalculable damage to the forest wealth of the country, started during the last week of July. After the first week of August, the smoke blotted out all view of distant hills for several days at a time and our work suffered accordingly. An occasional shift of wind to the north cleared the air but the prevailing wind was from the west.

After the first week of September we moved south, to continue the work across the Kananaskis river, but had only one day of fairly clear atmosphere and, finding no change, even after a snow storm, I determined to discontinue the work for the season. We reached Morley September 25 and returned to Ottawa. Since then, a great part of my time has been occupied in preparing maps and diagrams for this report.

GENERAL NOTES ON THE STRUCTURE OF THE CASCADE BASIN.

Cascade coal basin.

The valley of the Bow river, from the Gap to Anthracite, is eroded along the edges of Cretaceous sandstones and shales. These are dipping to the south-west and are terminated by a long line of fault, which runs about north-west and south-east. On the western side of this fault the limestone beds, which underly the Cretaceous, are thrust upward and now form the mountain ranges in which are situated Wind, Rundle and Cascade mountains. This break is continued south-east across the Kananaskis river. The various beds in

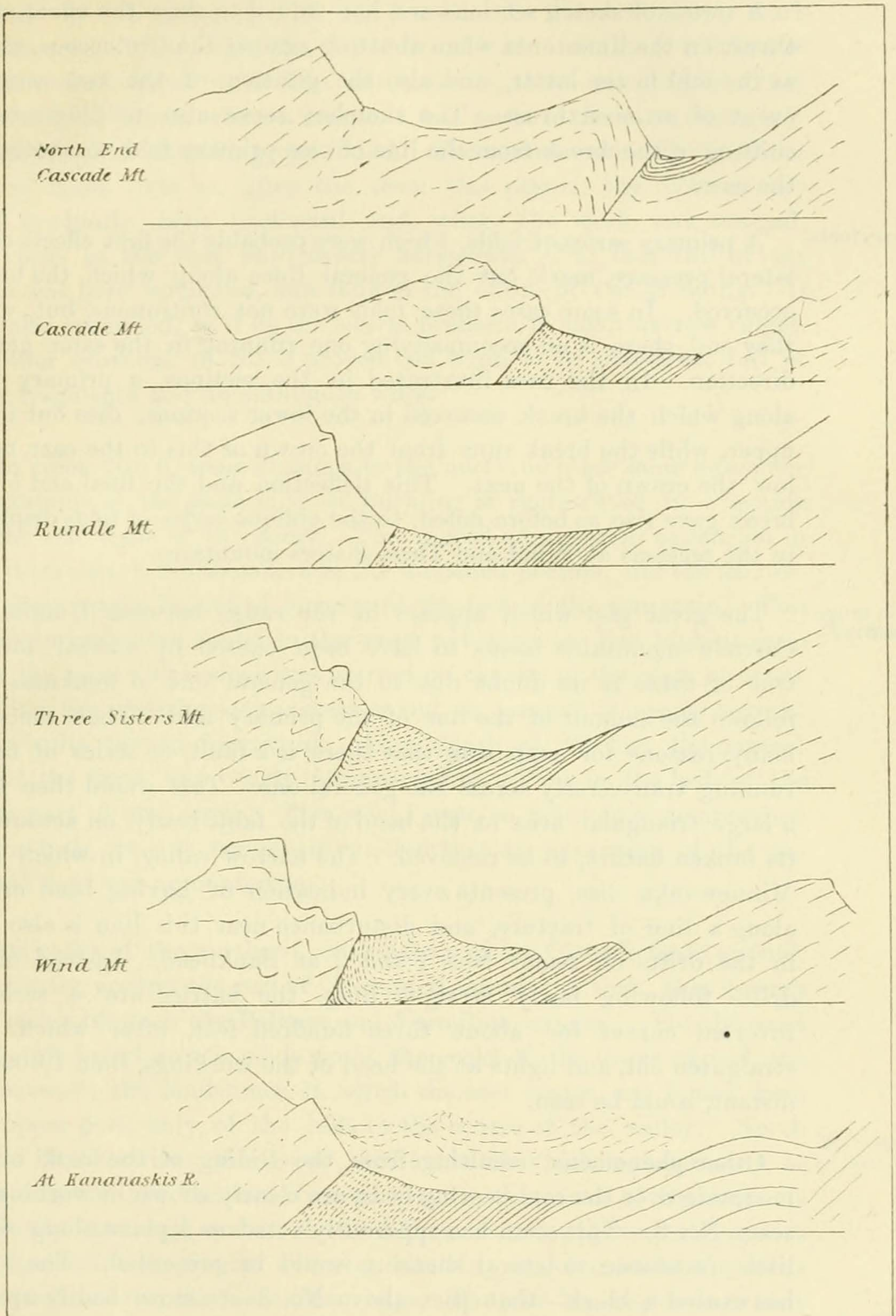
the limestone ridge can be traced continuously, and, at the Kananaskis, the relative heights agree very well with those at Cascade mountain, but at the intervening points they are generally at higher elevations. The amount of displacement relative to the eastern side of the break also varies considerably. The total series at one time contained a great thickness of Cretaceous and Tertiary rocks, all softer, and therefore weathering and crushing more easily, than the basal limestone strata. The overthrust of the fault brought the limestone members up against the Cretaceous, in many cases displacing and breaking up the upper part of these softer rocks.

Along this break the limestone sometimes overrides part of the Cretaceous, and at others, abuts fairly against the edges. At the Kananaskis it has been forced over part of the series. Northward on the height-of-land between this river and the Bow, the base of the Cretaceous does not seem to have been overridden, but has sustained the great pressure and the beds, for a short distance, are bent up in trough form. In the limestone, also, the pressure has developed a series of flexures which run through the range in a north and south direction about parallel to those noted last year in the Cretaceous, north of the Three Sisters mountain, and seems to denote a pressure, not at right angles to the line of fault, but rather from the west. A possible explanation, without a resort to secondary pressure, may be deduced from the fact that the fault continues, on a straight line, to the vicinity of Anthracite, and then diverges more to the north until it practically dies out. This point, then, the end of the fault, can be considered as a pivot for the lateral displacement of the beds. If the whole mass to the west is not influenced by this break, a part at least will be, and the direction of pressure and lateral displacement should be, in most cases, along lines at right angles to radii from the pivotal point. The folds, as above mentioned, roughly lie across this direction of pressure. Those in the Cretaceous beds from Anthracite south to the Three Sisters run, probably, more nearly parallel to the line of break, but also show, in some degree, the effect of pressure at an oblique angle to the general strike.

Pressure folds.

The different conditions of pressure along the break no doubt caused transverse faults, and some of these seem to be indicated at the gap behind Canmore in the Whiteman pass, and between Wind mountain and Three Sisters mountain.

SESSIONAL PAPER No. 26



SKETCH SECTIONS ACROSS CASCADE BASIN

A series of sketch sections are here added to show the effect of the thrust on the limestones when abutting against the Cretaceous, as well as the fold in the latter, and also the position of the two series in event of an overthrust. The sketches serve also to illustrate the shifting of the break from the line of one primary fold to another to the east.

Primary folds.

A primary series of folds, which were probably the first effects of the lateral pressure, mark out the general lines along which the breaks occurred. In some cases these folds were not continuous, but, where they end, there is an accompanying one running in the same general direction. In the case illustrated in the sections, a primary fold, along which the break occurred in the lower sections, dies out in the upper, while the break runs from the crown of this to the east, to follow the crown of the next. This deflection and the final end of the break gave rise, as before noted, to the oblique series of folds displayed in the sections at Wind and Three Sisters mountains.

Gap in range at Banff.

The great gap which appears in the range between Rundle and Cascade mountains seems to have been caused by several factors. One of these is no doubt due to the general line of weakness that follows the summit of the line of the primary fold. Then there are many reasons for supposing that there is a fault, or series of faults, running transversely across the general one. This would then leave a large triangular area at the bend of the fault ready, on account, of its broken nature, to be removed. The narrow valley, in which Lake Minnewanka lies, presents every indication of having been eroded along a line of fracture, and disturbance near this line is also seen in the drifts on seams Nos. 1 and 2 at Bankhead. Instead of the drifts following fairly straight lines, the entries are a series of reversed curves for about three hundred feet, after which they straighten out, and lights at the head of the workings, then 1,600 feet distant, could be seen.

Other phenomena, resulting from the sliding of the rock in the mountain over the coal bearing beds, are clearly shown in workings on seam No. 3. This seam has apparently acted as a plane along which little resistance to lateral shearing would be presented. The stress has caused a block—that part above No. 3—to move bodily upward along the plane of the beds. Where the strata were firmly held down by the backing of limestone, the beds moved in a solid mass, but, in the beds not under the heavy load, a certain amount of relief was afforded by the sliding measures buckling back on themselves. This formed, along the sliding plane, a series of rolls which made pockets in which the breechia from the grinding action was accum-

Buckling in coal measure.

ulated—in this case coal from No. 3 seam. In the preliminary work on the crest of the ridge, No. 3 was found with a width of 100 feet of broken coal; below it, as if in continuation, there was only five feet. At the mine below, where a cross-cut was made to the same seam, confirmation of this buckling was found. The tunnel evidently ran below one of these rolls as, after the seam was passed, the rocks of the roof gradually bent backward and, where the work was stopped, the rocks in the roof were nearly horizontal. The foot-wall of the seam was here smoothed, and showed the effect of the grinding. It was also crumpled, as if by the lateral pressure, in small narrow ridges. Another cross-cut to No. 3 proved the seam to be shattered, full of rock fragments and unsuitable to work.

On creek No. 6, some distance to the north, on these same measures, an example of the same kind of buckling is represented in a section on the side walls of the gorge. This caused an apparent expansion in the thickness of the measures in the unloaded portion, and the narrowing down might be looked for toward the foot of the mountain. This seems to have been found in the slope put down on tho highest seam near the mine. This slope was started on the dip of the seam at about 45°, but the underlie soon increased and, on account of nearly vertical cross faults, turned downward. At a depth of 200 feet the general dip of the slope was nearly 80° instead of 45° as in the beds of the lower part of the series. This would seem to point to a compression of the beds, were it not already noted that an expansion of the unloaded part was accounted for.

Highest seam.

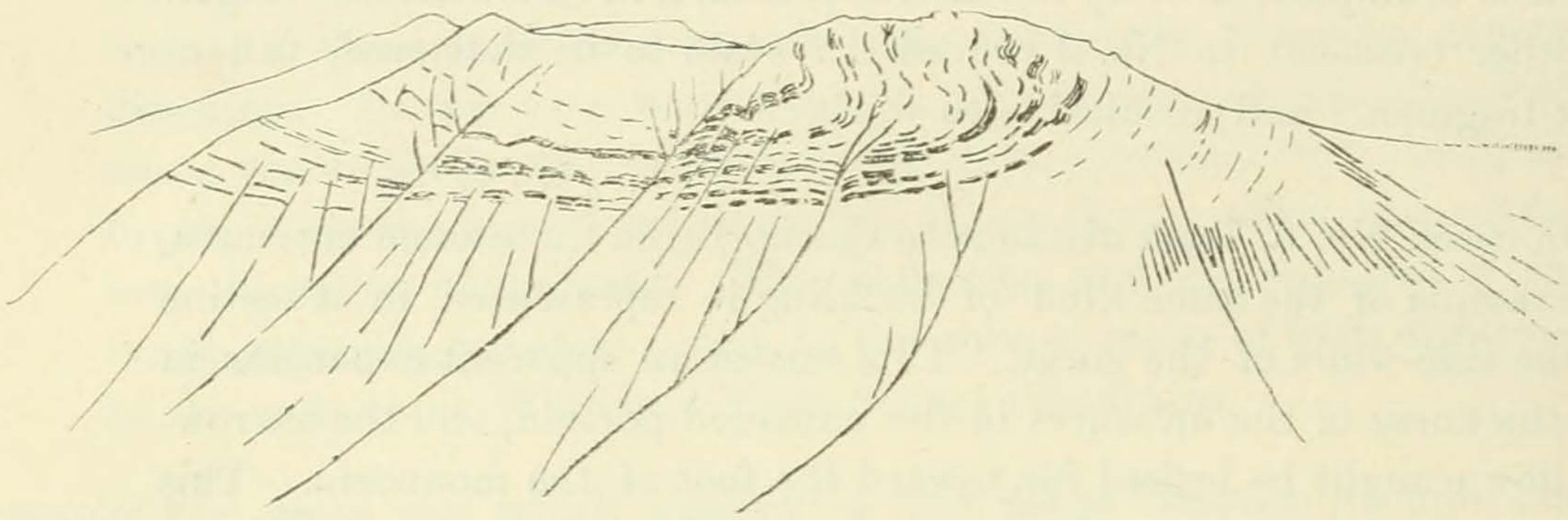
The rocks of the northern continuation of the Cascade basin extend, practically, around the end of Cascade mountain, so that they occupy the valley between the Palisser and Vermilion ranges. For the most part, this broad area is made up of the rocks of the lower part of the Cretaceous; the sandstones, in which the coal seams are found, form the upper part, only, of the hills in the centre of the valley. North of the Panther river, this broad, shallow basin which is terminated, at each edge on the Panther river section, by an upturn of the beds, is gradually narrowed, and as the Red Deer river is approached, appears as a monocline dipping to the west, abutting or going under the rocks upheaved to form the Vermilion range. The coal bearing rocks, which in the shallow basin appear only on the summits of the hills, here again form a narrow strip along the west side, in very much the same manner as along the face of the Cascade mountain.

Northern part of field.

The division line between the two types of structure is marked by a heavy fold running from the fault line, at the height-of-land between

the Red Deer and the Panther rivers, south-eastward to the centre of the valley near the Panther river, and is probably continued farther down the valley. Remnants of this or similar folds are seen on the hills to the south.

The sketch introduced here is outlined from a photograph of the south end of a hill just north of the Panther river. This is about midway between the ranges, but from this point the fold bears to the left, or in a W. N. W. direction.



Sketch of fold in the Cretaceous north of Panther river.

Another Cretaceous area is found to the east of the Palliser range, and attains its broadest dimensions just south of the Panther river. It is roughly triangular in plan, with a broad base along the east side of the Palliser range, and its apex at the gap through which the south branch of the Panther river crosses the range lying to the east. In the section on the Panther, the underlying rocks which form the eastern range are seen to have several heavy rolls in their beds as they disappear beneath the Cretaceous. These are sharpened up in compressed folds in the Cretaceous above. Unfortunately, most of the coal bearing rocks are here again removed, and the tops of the hills show crushed seams; it is only near the western fault, where some of the beds appear to turn down, that there is any chance of finding workable coal. Several seams were located but we had no opportunity of properly uncovering them.

Palliser basin.

The section published with the map of the Costigan coal basin is intended to show the relation of each of these areas to one another or the construction of the ranges. It extends from the Sawback range eastward to the first or outer range of the Rocky mountains, and includes three basins of Cretaceous rocks. To the west of the Sawback a fault has brought up against the highest of the Palæozoic, rocks comparable to the series in the Castle mountain, probably of Cambrian age. Eastward, then to the edge of the Cretaceous, there is a continuous series down to below the Intermediate series which is Devonian.

Geological Survey of Canada

ROBERT BELL, Sc.D., (Camb.) LL.D., M.D., F.R.S., I.S.O., ACTING DIRECTOR

1905

GEOLOGICAL MAP OF COSTIGAN COAL FIELD ALBERTA.

To illustrate Summary Report of
D.B. DOWLING, B.A.Sc.

Scale of Chains

Tp. No. 31. R. XI. W. 5th M.

Tp. No. 30. R. XI. W. 5th M.

Pack Trail

Panther River

Line of Section

Fault

South Branch Fault

Explanation of Colours and Signs

- Cretaceous — Sandstones and conglomerates
- Cretaceous — Coal measures
- Devonian — Upper Banff shale
- Devonian — Upper Banff limestone
- Devonian — Lower Banff shale
- Devonian — Lower Banff limestone
- Devonian — Intermediate limestone
- Devonian — Lower shales
- Boundaries of first above sea level
- Contours interval 200 feet
- Mountain features approximate only

Drawn for photolithography by Paul Everendt

Notes — The topographical portion of this sheet depends upon a transit chain traverse from Costigan coal to mouth of Panther river, by J.H. McLatchie, D.L.S. 1902
Mountain features from photographic survey by D.B. Dowling 1904

To accompany Part A (of XVI) No. 892 Plate XXII

SECTION ALONG LINE A-B

STEREOGRAM OF FIELD FROM SOUTH EAST

Costigan Basin

Mouth of Panther River

Panther Mesa

Cadomin Basin

Pallister Range

Vermilion Range

The summit of the Vermilion range is of the Lower Banff limestone and, in the Palliser, the higher points vary between that and the Upper Banff limestone. In the two ranges to the east the Upper Banff forms the main summits.

NOTES ON THE MINES.

Canmore mine.

The mines at Canmore continue in active operation and the output is expected to increase materially as a new and additional entry is to be made on the Sedlock seam about a mile south-east of the town. This, as noted in last year's Summary, will probably be found to connect round by the south with the seams of the present mine. If this occurs it will give readier access to a large area, the distance of which from the main slope of the mine precludes payable underground haulage.

As the railway takes the run of the mine, the temptation to be lax in picking up rock and other dirt, on the part of the miners, is very great, and some of the complaints from the engineers are no doubt due to too much dirt being shipped. The majority of the seams are of good quality of coal, but some are dirty, and unless great care is exercised, either by inspection or washing, the good character that this coal has hitherto had may suffer.

The mine at Anthracite has been gutted and the pillars taken out. The operating company having given up their lease, all the machinery has been removed to Canmore. All the available coal in the fold on the south edge of the property in which the mine is situated has been taken out to the boundary of the claim and no arrangements were effected for mining the adjacent land, so that now it will be difficult to reach the latter except by a new entry. The northern part of the property, as far as the Cascade river, still contains many seams, the continuations of those at the north side of the stream, on what is now the C.P.R. mine at Bankhead. Owing to the greater part of the valley to the east of the Cascade river being covered by a thick gravel terrace, prospecting will be difficult. For the present this area will have to be left unworked; the coal on the C.P.R property can be mined much more cheaply since most of the output will be from that part of the measures above the entry.

DEVELOPMENT WORK AT BANKHEAD.

Bankhead mine.

The coal bearing measures lying along the north-east slope of Cascade mountain were prospected for the C.P.R. Company by Mr. J. C. Gwillim, formerly of this Survey. The cuts made by the small streams running from the face of the mountain were utilized for this purpose

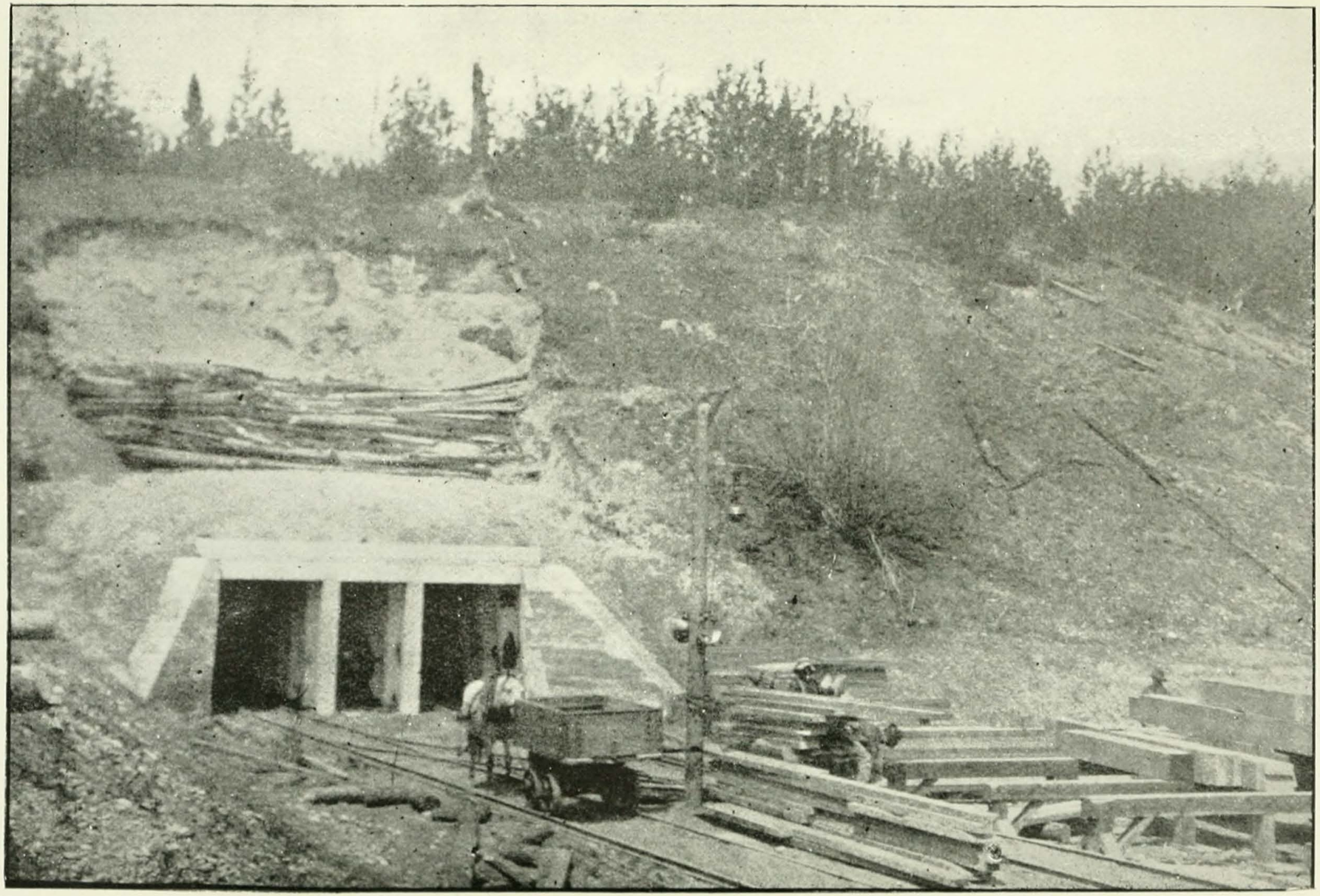
and many small tunnels run in on the seams so found. For the larger workings, it was however more advantageous to attack the seams from the south end of the slope near the Cascade river where a spur line could be built from the main line. Two prominent seams near the lower part of the measures were traced southward and down the slope to a small plateau above the river. From this point two tunnels were driven on the strike of the seams. The spur from the railroad ends on a lower plane near the stream, some 250 feet below the tunnels. The larger seam was followed downward from the mouth of the tunnel by a slope to near the level of the spur track near the river and a tunnel was started to connect the bottom of the slope with the shipping point. As most of the material lying along the face of the hill is gravel, a great part of the total length, which is about 1,600 feet, will be under the gravel. The tunnel is, therefore, very heavily timbered and the progress in construction is necessarily slow. It has a width of twenty-two feet to accommodate two tracks and is nine feet high, so that it will be made the main entry to the mine.

The slope of the measures approximates 45°, a little steeper than the angle of repose for broken coal ; the coal consequently will be filled in chutes running down to the lower level. The chute will be kept nearly full to minimise the impact of the falling coal and thus reduce crushing to a minimum. The mining will then be carried upward and little of the material need be rehandled till drawn out at the lower level. This, although requiring an extra outlay in the construction of the lower entry, will for many years reduce the cost of mining, the supply of coal being above the entry.

Cross entries are to be made to cut all the measures, but it is expected that from No. 1 seam to the highest known, a distance, on the level, of 2,600 feet, will be about the total width of the available measures. The two lower seams now being mined, are but a part of the available coal.

Amount of coal.

The supply which these two seams should furnish, if they maintain their thickness of from seven to nine feet each, can be estimated roughly by considering that, at a mile from the lower entry, the upper outcrop is at least 1,000 feet above and, at two miles, about 1,500 feet above the entry and this latter height is maintained for several miles. In the upper seam, the distance to the surface is generally greatly increased owing to the steep slope of the mountain side and on one of the creeks, four miles from the south entry, coal is found at an elevation of 2,300 feet. These upper seams will probably not be mined as far along their strike as the lower ones, on account of their gradual approach to the fault plane, and a fold, the centre of the original pri-



D. B. P. Photo.

Main Entry to Bankhead Mine.

mary syncline which occupied the valley at its northern end. This fold seems to run southward and downward into the plane of the fault. This may really not be a part of the primary fold but simply a modification due to the overturning of part of the beds and the overriding of the rest. The effect of this on the outcrop of the coal seams in going north will be to bend them toward the mountain and the fault plane. As the beds are entirely eroded before reaching the first gap in the range, some six and a half miles northward from the entry of the mine, all the seams must eventually end at the fault and the lower ones will naturally be found to extend the farthest. If the seams on which the entries are made be continuous, the lower entry should run about five miles before reaching the fold, when the beds should bend in toward the mountain and mining operations will follow the long easy slope up to the outcrop at the far end.

Estimate.

A rough estimate may be made of the available coal in a length of five miles for the lower seam. The seam may average eight feet in thickness and have a depth of 1,200 feet above the entry or 1,700 feet along the slope. A rough approximation would give more than nine million tons or an output of nearly 500 tons daily for fifty years and, for the two seams, 1,000 tons daily for the same time. The market for semi-anthracite being at present restricted, the product of these two seams should last longer than this estimate.

Lower seams harder than upper.

The observations made in the Souris coal field on comparisons of seams whose age of deposition varied slightly, appeared to point to a general tendency of the older beds to be higher in fixed carbon than those above. This is found to also apply to the seams at the Bankhead mine. Another factor to be considered as affecting the present condition of the coal in the seams is that the lower ones are enclosed in thick walls of sandstone and have been gradually giving off their gases through the porous sandstone, while the upper and middle seams are enclosed in thinner sandstones and shale beds and have, therefore, not lost the volatile elements so rapidly. In the seams at the mine the variations in the fixed carbon content are in a fairly regular order following the position of the seams. The lower ones contain from 84 to 85 per cent fixed carbon with from 9 to 16 per cent volatile matter, a semi-anthracite coal, while the upper ones are a coking or blacksmith coal having 78 per cent fixed carbon and 14 per cent volatile. The middle seams will probably be of about the same character as those at Canmore,—a steam coal, the quality which is required for the present style of engine used on the railway.

The plant now being installed includes four large shops for storage, car building, blacksmith and machine shops. These are equipped with

the latest type of machines. Steam for motive power will be supplied from a battery of boilers designed to use the smallest of the coal produced at the mine. The plant will also include two air compressors, one for drills and the other, of high pressure, for motors. The screening plant now in use and probably the most successful for this brittle coal, is a series of shaking screens which retain the larger sizes at first and eliminate much of the grinding action of the larger pieces against the smaller. Mechanical pickers are to be installed if any of the devices prove satisfactory.

About forty cottages were built during the summer, many of them of very neat appearance. Streets are graded, drains and water pipes laid and a water supply arranged for either domestic use or fire purposes.

THE COSTIGAN COAL BASIN.

Costigan coal basin.

This area is the first inside the first range of the Rocky mountains on the Panther river. It is roughly triangular in shape with a short base extending up the south branch of this stream. The two sides are longer and the apex is north of the Red Deer river. The western edge is along the fault line which brings up the second range, and the eastern edge follows the contact of the lower part of the Cretaceous on the upper part of the Banff shales which, in all this district, maintain practically the same character, namely, reddish shales and dolomites overlying the quartzite at the summit of the Devono-Carboniferous limestones. The Cretaceous here has not been denuded to such great extent as in the adjoining basins but forms an irregular plateau betwen the two limestone ranges.

The fault along the western edge is evidently of the nature of an overthrust, but traces of parts of an overturned fold still remain and tend to confirm the belief that these breaks were formed along the centre and crests of compressed folds. North of the river an example is seen in the face of the range, where, evidently, the upper beds bend down in front of the break through the lower members. The Cretaceous, against which these rocks now rest, show the effect of the west to east pressure and the beds are turned up to form a syncline.

Structure.

The third side or base of the triangular area is bounded by the same beds as on the east, but there is a line of fault through this range at the gap of the Panther river where there is a sharp deflection in the direction of the range. This break is continued westward into the Cretaceous, and then south-westward between the upper beds of the limestones and the Cretaceous. The beds of the latter have been

thrust up on the limestones in the movements induced by the eastward pressure, and the contact is changed from a conformable one, along the east side, to a line of broken beds, chiefly coal-bearing sandstones. The shales of the base of the Cretaceous were the weakest members of the series and, therefore, did not withstand the crushing and shearing.

The general structure of the Cretaceous in the form of a syncline is maintained to the fault line at the south-eastern border, but the coal seams, which should here outcrop, are probably very much fractured or, in most part, cut off by the fault.

Most of the upper beds occupying the centres of this trough are sandstones, but a few of a coarser nature become in places a conglomerate. These, so far, do not appear to contain coal seams and, therefore, are for convenience outlined on the map in a light shade of green. Below this division the measures are practically barren for 1500 feet, after which a five foot seam is met, which is the one originally prospected as the Costigan seam. On the eastern outcrop this is practically the only one exposed, except perhaps another on the south branch, where the beds are very much disturbed.

Up the river, near the mountains, the Costigan seam reappears and is seen in the crest of a small anticline which runs across the river. It again outcrops about 650 feet further west and runs up toward the disturbed measures near the fault.

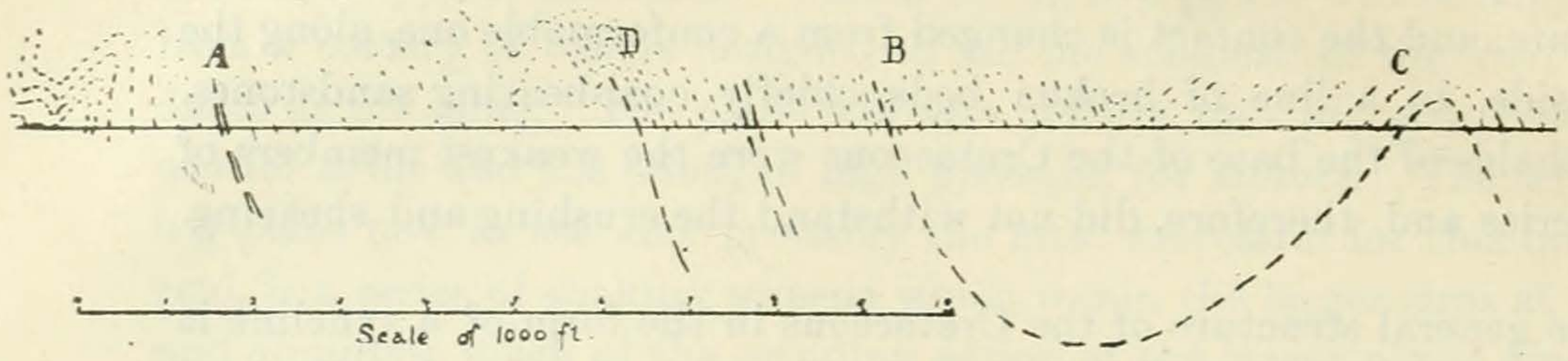
Beneath the seam, at this point, there is a series of seams that appear to be of fairly compact coal.

The appearance of the Costigan seam, where exposed at the eastern edge of the basin in Section 4, is poor. About eight feet will have to be mined to get a total of five feet of coal. The following is the measured section :—

Dip 25° W. 10° N.

Roof, soft friable sandstone, some of which will have to come off.

ft.	in.		
3	7	sandstone and shale, containing two streaks of coal 3 in. and 5 in. respectively.	Costigan seam
1	9	"coal", weathers to black powder.	
	8	shale.	
2	7½	coal.	
8	7½	of which, say, five feet is marketable coal.	



Section of measures on river near western boundary.

On the accompanying map, posts placed by Mr. McLatchie are indicated by letters A, B, &c. At C, a point on the west side of the anticline, near the western edge of the field, the Costigan seam dips 70° W. 15° S. The thickness here totals nearly five and a half feet, as indicated in the following section :

ft.	in.	
	5	coal.
1	4	shale and sandstone.
4	11	coal, including two small streaks of shale one and two inches thick.
6	8	

Section at western upturn.

The seam is repeated at *B*, with the addition of a few streaks of coal above it. As the seam is here dipping at a high angle to the east, the following section, measured from the east, will be in descending order, and is illustrated on the accompanying section from *C* to *D*.

Sandstones above Costigan seam :

ft.	in.	
1	6	coal.
6	0	sandstone.
	8	coal.
2	4	black shale.
1	0	coal.
4	0	shale and thin sandstones.
Post B 4	9	coal.
145	0	shale and sandstone.
4	0	coal, crushed to powder.
15	0	sandstone.
3	9	coal hard and not broken (between walls 5 ft. 4 in.)
120	0	sandstone.
Post D 3	6	coal fairly hard but fractured.

From *D* to *A* there are several waves in the beds. At *A* there are two seams close together, very much crushed, but these are probably the thickest in the basin and may average six feet each. If the section above be repeated on the eastern outcrop, there is a chance that several of the seams can be mined there, and as the entry would be made near the river at an elevation of about 5,000 feet, the coal in the long strip of the plateau above this entry could be cheaply mined. Very little of the upturned seams at the west would be payable unless their quality justified deep mining. The area, then, that seems of promise is the elevated plateau north of the stream. The southern portion is probably crushed to a considerable extent.

An estimate of the probable amount of coal in the five-foot seam underlying a square mile of the above plateau would be over three million tons, but if all the seams exposed at the western upturn were present, a total of fifteen million tons might be counted on.

Analyses of coal.

The character of the coal, as given in the analyses, indicates generally a steam coal. The samples received by this department some years ago are, owing to lack of surveys, not definitely indicated as to locality. The first analysis quoted below appears to be of coal from beneath the Costigan seam, and probably indicated in the section from *C* to *D*, 145 feet below *B*.

*'Semi-anthracite from foot-hills. First branch of Panther or Little Red Deer river, to east of base of main Rocky mountain range, one mile above confluence with Panther or Little Red Deer river, District of Alberta, North-west Territory. Seam four feet thick and horizontal.'

Collected by Mr. W. B. M. Davidson.

'Structure lamellar, made up of irregularly alternating layers of a grayish-black, somewhat bright and dense, jet black coal of brilliant lustre-compact; brittle; fracture uneven; hard and firm; when suddenly heated decrepitates, but not very considerably.'

"Analysis by fast coking gave :—

Analyses of coal.

Hygroscopic water	1.52
Volatile combustible matter	11.65
Fixed carbon	81.16
Ash	5.67
	100.00
Coke per cent	86.83

* Annual Report, vol vi (1892-93), p. 11 R.

"Ratio of volatile combustible matter to fixed carbon 1 : 6.97. It yields a non-coherent coke. The gases evolved during coking burnt with a yellowish, somewhat luminous, all but smokeless flame. The ash, which is almost pure white does not agglutinate at a bright red heat, but at a most intense red heat becomes fritted."

Dr. Hoffmann has kindly furnished the results of analyses made by Mr. F. G. Wait of coals collected from this locality during the past season. The results are as follows :—

Analysis of coal from the Costigan seam at its outcrop just above the forks of the Panther river. Thickness of seam 4' $4\frac{1}{2}$".

Hygroscopic water	1.14
Volatile combustible matter	13.63
Fixed carbon	80.64
Ash	4.59
	100.00
Variety of coal semi-anthracite coke, pulverulent	85.23 per cent

Analysis of coal from outcrop, supposed to be of the same seam, at western edge of basin at post *B*. Thickness of seam 4' 9".

Hygroscopic water	0.69
Volatile combustible matter	15.75
Fixed carbon	77.15
Ash	6.41
	100·00
Variety of coal—anthracitic.	
Coke, firm, coherent	83.56 per cent

Analysis of coal from seam 3 ft. 9 in. thick and 164 feet below the seam at *B*.

Hygroscopic water	0.79
Volatile combustible matter	15.66
Fixed carbon	76.05
Ash	7.50
	100·00
Variety of coal—anthracitic.	
Coke feebly coherent	83.55 per cent

Analysis of coal from seam 3 ft. 6 in. thick, and 270 feet below that at *B*, but on north side of river at post *D*.

Hygroscopic water	0.61
Volatile combustible matter	16.49
Fixed carbon	79.56
Ash	3.34
	100.00

Variety of coal—anthracitic.

Coke, firm, coherent ..... 82.90 per cent

The seam at A is probably already described in an analysis of specimens brought by Mr. W. B. M. Davidson. The thickness is given as eleven feet.

* Analysis by fast coking of a fair average sample of the foregoing material gave :—

Hygroscopic water	1.87
Volatile combustible matter	13.74
Fixed carbon	79.55
Ash	4.84
	100.00
Coke per cent	84.39

Ratio of volatile combustible matter to fixed carbon 1 : 5·79.

"It yields a firm coherent coke. The gases evolved during coking burnt with a yellow, luminous somewhat smoky flame. Colour of the ash, white, with a faint reddish tinge ; it does not agglutinate at a bright red heat but at a most intense red heat, it became fritted."

These analyses show that all the seams furnish steam coal of good character and some of them a good coking coal. The two specimens from the eastern part of the field are rather unexpectedly found to have a higher percentage of fixed carbon than those at the west. This must indicate that their proximity to the south-eastern line of over thrust has been close enough to allow of a considerable alteration in the character of the coal, greater in degree than that induced in the bent up part along the western margin.

Northward along the eastern outcrop, away from the faulting, the coal measures have every appearance of little disturbance and they should there contain coal seams of more bituminous character. No specimens are at hand to prove this assertion but it should be borne in mind as a possibility.

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* Annual Report, Vol. VI, p. 11 R.

The Government Expedition to Hudson Bay and Northward by the S. S. 'Neptune' 1903-04.

GEOLOGY AND NATURAL HISTORY.

By Commander A. P. Low, Officer in Charge of the Expedition.

Introduction.

In the summer of 1903, Mr. A. P. Low, a member of this staff, was appointed to the command of the Government Expedition to Hudson Bay and Northward; at the same time he received instructions, from this Department, as to the work in connection with the geology and natural history of these far away and little known regions of the Dominion.

The primary object of the expedition being other than scientific, work in that direction was necessarily subordinated; the following report gives the results attained by the scientific staff of the the expedition, working under considerable disadvantages as to time, and owing to the nature of the field of exploration, as to climate and ice.

The Neptune chartered.

An itinerary of the voyage of the *Neptune* is printed in the Annual Report of the Department of Marine and Fisheries; only a brief outline, therefore, of the course followed need be given here. The *Neptune*, the largest and most powerful of the Newfoundland sealing-fleet, was chartered for the use of the expedition and arrived in Halifax about the middle of July. The vessel was in the same condition in which she returned from the spring sealing voyage, so that a considerable amount of repair and alteration was necessary to equip her for the winter quarters of a large crew. Provisions and outfit sufficient for two years having been purchased, the ship sailed from Halifax on August 23.

The coast of Labrador was duly reached by passing through the strait of Belle Isle. On the way north, stoppages were made at Dominoe, Nachvak and Port Burwell, where the Archæan rocks were noted in some detail.

Hudson strait.

From Port Burwell the voyage was continued across the mouth of Hudson strait. Coasting along the bold shores of Resolution island, a good idea of its geology was obtained, the rocks being all Archæan and crystalline, in which light coloured granites appeared to prevail. Heavy fogs prevented a further examination of the shores, until the southern side of Cumberland gulf was reached. This shore is very bold and rugged, rising in cliffs from 500 to 1,500 feet above the sea, while, inland, the general elevation of the country probably exceeds 2,500

feet. The coast is deeply indented with deep fiords and a wide fringe of rocky islands increases the number of channels, so that it is possible to pass, with small boats, from the mouth to the head of the gulf, without touching the open sea. The rocks were examined in a bay about twenty miles east of Blacklead island, where pink medium-grained granite was found interbanded with gray mica and mica hornblende gneisses, evidently cut and altered by the associated granite. At Blacklead island, the gneisses prevailed over the granite-gneiss, which was much coarser in texture. In places the dark mica-gneiss contained flakes of graphite; hence the name of the island. To the westward of this island, prospecting has been done on some deposits of mica and pyrite but, under the difficult climatic conditions, these proved unprofitable.

Kikkerton islands.

At the Kikkerton islands, on the north side of the gulf, the geology is complicated by the presence of large bands or masses of gabbro, and its schists, formed by pressure; no valuable minerals have as yet been discovered in these bands.

Returning south from Cumberland gulf, landings were made at Cape Haven, the northern point of Cyrus Field bay, and at Frenchman cove at the head of the bay. At the former place the rocks are largely granitic, with some bands of darker micaceous and hornblendic gneisses and schists. One of these bands, on the island forming the harbour, contains many fine cube crystals of pyrite. At Frenchman cove, the rocks are wholly granitic, but there are, in the neighbourhood, other rocks, from which the natives have obtained large lumps of pyrite, and also, perhaps, from their descriptions, some copper-pyrites. The rocks of this eastern portion of Baffin island, appear to carry a considerable amount of mineral, as well as mica and graphite, and will probably repay closer investigation. In visiting this region, after leaving the rounded, strongly-glaciated hills of the Labrador coast, one is struck by the more uneven outline of the hills, and their peak-like summits. Glacial striae are very difficult to detect, and, although there is good evidence that the country was covered during the glacial period, it was probably by a lesser thickness than were the more southern regions of Labrador, and the eroding action of the ice was not nearly so intense as in Labrador.

Crystalline rocks.

The crystalline rocks form the islands separating Frobisher from Cyrus Field bay. Franklin and Montmental islands are about twenty miles apart and lie off the mouth of Cyrus Field bay; they appear to be formed of crystalline rocks and are probably the summits of a long submerged ridge marked by a line of icebergs, which extends from a

distance of ten miles beyond the northern island to a like distance south of the other island.

Grinnel glacier.

Returning to Hudson strait, the course was laid westward along its northern shore. This coast is indented by a number of deep bays, where, when the coast is surveyed, good harbours will probably be located. The country rises rapidly inland, so that its summit is upwards of 2,000 feet above sea-level. The surface of the great Grinnel glacier may be seen from the southern waters, extending westward for forty miles and lying just beyond the southern watershed. This glacier is not very active and discharges only a few small icebergs into one of the numerous fiords of the southern shore of Frobisher bay.

The Saddle-back islands were passed so closely that their Archæan character could be observed and we were able to count at least twice the number of islands at present laid down on the chart.

The next stop was made at the western end of Charles island, where the rocks were largely a pink granite-gneiss, associated with bands of light and dark gray, mica-gneiss. An interesting fact in relation to the glaciation is that the striae on the island show that the glacier moved from west to east; this confirms the observations made by Dr. Bell, on other islands of Hudson strait, that the ice poured down from the lands on both side of the strait and then flowed eastward in a great stream to the Atlantic.

Several hundred walrus were seen swimming about or resting on a small island near the north end of the island and a stop of a day was made to hunt these animals, to procure food for the dogs during the coming winter. After a great deal of exciting sport, in the small steam launch, seven of these great animals were captured by first harpooning them and then killing them with rifles Owing to the difficulty in securing them at least twice that number, mortally wounded, were lost.

Erik Cove.

From Charles island the *Neptune* proceeded direct to Erik cove, which is situated immediately east of Cape Wolstenholme at the western end of Hudson strait. A stop was here made to fill the water tanks; while this was being done, the hunters killed two white bears, one of which was found asleep in a deep hole it had scooped out of a large snow bank. Erik cove was the starting point of the Geological Survey Exploration of the east coast of Hudson bay in 1898-9, when the geology of the vicinity was fully investigated. A further examination, to the eastward, failed to produce any new facts on the present voyage, the rocks being chiefly rusty, fine-grained, dark

mica-schist and gneiss, holding considerable amounts of disseminated pyrite and graphite. These rocks are cut and twisted by a later pink and red granite-gneiss.

Southampton island.

From this cove the ship headed northward, across the mouth of Fox channel to the eastern coast of Bell island, or rather of Southampton island, as the supposed Bell island is a portion of the greater island. A landing was made at Seahorse point, where a junction occurs between the older crystalline rocks and the newer, overlying Silurian limestone. This junction is strongly marked on the physical character of the island; the northern portion, underlain by the old crystalline rocks, has all the characteristic features of more southern areas of similar rocks. Low rounded hills, with a more or less flowing outline, rise in low cliffs from the sea, and the adjoining waters are fairly deep. The country is, of course, barren, nothing but small arctic shrubs being found in the damp hollows or surrounding the myriads of small lakes and ponds which dot the surface. The predominant rock is a granite-gneiss of coarse texture, and varying in colour from a dark to a light red, with a peculiar pearly lustre due to its feldspar. Broken bands of diabase and its alteration product, dark chloritic schists, are contained as bands in the red gneiss.

To the southward, the country of the limestone is very flat, with low shores rising inland in broad, shingle covered terraces, each a few feet higher than the one below. Seaward, the water deepens very slowly and reefs of limestone break the even bottom, so that it is dangerous to approach within three or four miles of the low, monotonous shores. The limestone shingle covers the terraces to a depth of several feet, making the drainage perfect, and rendering the surface so dry that even the hardy arctic plants cannot grow. The result is a very desolate plain rising slowly inland, with everywhere the unrelieved dirty yellow colour of the broken limestone. No fossils were found on this side of the island.

Loose ice.

A large quantity of loose ice, in large, heavy cakes, had been passed through on the trip northward, from the neighbourhood of Leyson point, at the entrance to Evans strait. This ice became more plentiful to the northward of Seahorse point, and the attempt to pass through the supposed channel between Bell and Southampton islands was abandoned owing to the loss of time entailed by passage through the ice so late in the season.

While passing through the ice, hundreds of walrus were seen floating about on the smaller cakes, and two of these were added to the supply of dog meat. Turning southward Leyson point was rounded and, the

ship heading westward, passed through Evans and Fisher straits, which separate Southampton from Coats island. The low shores of the former were followed to the vicinity of Walrus island, a small knob of crystalline rocks rising through the limestone near the middle of the strait, and not two fairly large islands as marked on the chart.

Winchester inlet.

Land was not again seen until Winchester inlet, in the north-west corner of Hudson bay, was reached. The mainland of the western portion of the bay, from Chesterfield inlet northward to Wager inlet, bears throughout the same physical character. Archæan rocks are universal, and the character of the country corresponds to the low-lying areas of those rocks in more southern regions. Long low hills, rounded and striated by the glacier, lie in broken parallel ridges, with wide shallow valleys between. These valleys are everywhere filled with lakes and ponds, or with swampy ground where hardy shrubs, grasses, mosses and lichens grow fairly luxuriantly and afford good pasture for the large bands of barren-ground caribou that roam about the region. In former times this pasturage supplied food to similar herds of musk-ox that have now disappeared, having been too closely hunted by the natives, so that they have either been exterminated or driven to the more inaccessible country to the westward of the head of Wager inlet.

Description of the shores.

The shores are comparatively low, with no elevations of more than a hundred feet, and the country inland does not rise, on an average, ten feet to the mile. Rocky islands and shoals, in most places, form a wide fringe along the low shores, so that the danger zone for ships extends for five to ten miles from the mainland, often, indeed, to beyond the sight of land.

A band of Eskimos, found at Winchester inlet, gave the information that the American whaling schooner *Era* was already in winter quarters at Cape Fullerton, and that a supply of meat and deerskins for the necessary winter clothing of our crew could be obtained only from the natives of Chesterfield inlet. In consequence of this information the *Neptune* was sent to Fullerton, while the launch started on a trip up Chesterfield inlet, a rather risky undertaking so late in the season.

Eskimo encampments.

Owing to the hurried nature of this trip, little geological work was accomplished beyond confirming the observations of J. B. Tyrrell, who had in 1893 examined the shores of the inlet. Two Eskimo encampments were visited ; the lower one was about sixty miles up the inlet, where some half a dozen tents, made of deerskins, were pitched on a barren plain at the head of a large bay on the north shore. The second encampment, of four tents, was situated on the banks of the

south channel of Bowell island, near the entrance to Baker lake and ninety miles from the mouth of the inlet. There are large areas of dark green schists and eruptive rocks along this channel, which, owing to lack of time, could not be examined for economic minerals. Smaller areas of similar rocks were seen on the banks lower down the inlet, but the prevailing rock everywhere is a light-coloured granite gneiss.

The large islands and the shores of the mainland about the mouth of the inlet are low and rocky, the rounded hills seldom having an elevation of one hundred feet. The land rises slowly as the inlet is ascended, so that, twenty miles up, the surrounding country has a general elevation of 200 feet, while about Bowell island it may rise 100 feet higher. Dangerous shoals extend far out into the bay from the northern side of the entrance to the inlet. In rounding these shoals with the launch, the low shores of the mainland were lost sight of in the wide detour necessary to pass them. Upwards of 200 skins were purchased from the camps, payment being made in knives, needles, ammunition and tobacco. A large amount of fresh meat was also secured. The caribou were on their way south to the edge of the wooded country, and were killed at their favourite crossing places along the inlet by the natives, who speared them from their kyaks. At the upper encampment the evidence of a great slaughter existed in the large heaps of horns piled around the tents. Caribou.

On the return trip down the inlet the launch was unfortunately wrecked at Dangerous point, thirty miles above the mouth. The crew were in a dangerous predicament, without fuel or winter clothing, and with only a twelve foot dingy to cover the hundred and fifty miles separating them from the *Neptune*. The ponds were frozen over and the ground covered with snow, so that the greatest dispatch was necessary in order to obtain relief from the ship before winter set in. The Eskimo pilot, the interpreter and a sailor were immediately sent in the dingy to the ship, while the remaining four of the crew made themselves as comfortable as possible with the sails and covers of the launch. Considering the season and weather the dingy made a remarkably quick trip, and on the sixth day after their departure those remaining behind were gladdened by the sight of the *Neptune* steaming up the inlet to their rescue. Bad weather delayed the attempts to raise the launch, and it was a week before it was hoisted on board, so badly damaged as to keep the carpenter busy all winter on repairs. Wreck of the launch.

While awaiting the arrival of help, the party at Dangerous point made excursions inland, in various directions covered by a radius of ten miles. The country was found to consist of ridges of low hills, with many small lakes in the intervening valleys. The rocks through-

out were light and dark red granite-gneisses, without any trace of enclosed areas of other gneiss or schist. Signs of the barren-ground caribou were plentiful, but no sight of the animal itself was obtained. Several Arctic hares were killed in their beautiful white winter coats, and ptarmigan, in large flocks, were continuously crossing the inlet on their way south. Several unsuccessful attempts were made to catch fish through the ice of the lakes.

Return to Fullerton.

No trouble occurred on the return trip from the inlet to Fullerton harbour, which was reached on October 11. Preparations for the winter were immediately undertaken. These included the cutting of a large supply of ice from a freshwater pond on a neighbouring island; the ice was already nearly a foot thick in the pond. The decks were closed in with a rough boarding, and the cracks covered with tar-paper; later, when the ice about the ship was sufficiently thick, a wall of snow, about three feet thick, was carried to the top of the housing and made to completely enclose the ship, keeping out much of the cold and preventing all draughts. The *Era*, similarly prepared for the winter, lay within a hundred yards of the *Neptune*.

Zoology.

While the ice-cutting was in progress, Professor Halkett, who had charge of the zoological work, made large and interesting collections of invertebrates from the waters of the pond. During the winter months, he prepared, for museum purposes, a number of skins and skeletons of the animals killed in the vicinity of the ship. The short days and cold, blustery weather of the winter months prevented all other scientific work, out of doors; work was confined, therefore, to the taking, at intervals of four hours, complete weather observations, which will prove very valuable for comparison with those of the Northwest Territories.

Eskimos.

About one hundred and fifty Eskimos, belonging to two distinct tribes, lived, throughout the winter, in snowhouses built on the ice near the ships. With the assistance of Captain Comer of the *Era*, a considerable amount of information was gathered concerning the numbers, habits, manners, customs and religion of the tribes inhabiting the northwestern shores of Hudson bay; while Dr. Borden took many body measurements and studied the diseases of these people. The information thus obtained, supplemented by that derived from other natives of the north, forms the basis of the lengthy article on the Eskimos to be published in the forthcoming report of the Expedition.

Survey.

The spring work was commenced on April 6, when Mr. King started to survey the harbour and its environments, and continued at that work until the ice broke up in July. The survey embraced a great number of soundings of the waters of the harbour and the approach

from seaward. These soundings were made through ice averaging six feet in thickness.

Mr. Caldwell's work.

Mr. Caldwell left the ship on the 11th. with instructions to survey the coast northward to Wager inlet, the shores of which were to be examined thoroughly; after which, if the season and other considerations permitted, he was to continue northward along the coast to Repulse bay making as thorough an examination of the rocks as circumstances would allow. He was accompanied by two natives and his outfit was drawn on a sled by a team of eight dogs. Mr. Caldwell returned to the ship on May 30, having, in the interval, explored the coast to the head of Wager inlet; bad weather and a scarcity of dog food had so greatly delayed him that he found it impossible to continue the exploration to Repulse bay.

Mr. Caldwell reported the country as being very low and flat to within a few miles south of the mouth of Wager inlet, with the characteristics common to all Archæan regions. The coasts was left a few miles south of the inlet and a pass between the low hills, followed northwestward, ended on the southern shores of the inlet some miles above its mouth. The strong tides at the mouth of the inlet prevent it from freezing over and, as the rocky hills there rise directly from the water, it is impossible in winter to pass with sleds along the coast. The open water extended more than fifteen miles up the inlet, which, elsewhere, was completely frozen over. The land on the north side is considerably higher than that to the southward and has an average elevation of upwards of 500 feet. As the inlet is ascended, the country becomes higher and rougher so that, at its head, many of the rounded hills rise over a thousand feet, while inland they soon merge into the high mountainous country known to lie between Wager inlet and Repulse bay. No difficulty was experienced in procuring an ample supply of deer and seal meat to feed the men and dogs of the party.

Cape Fullerton.

Owing to circumstances in connection with the command of the expedition, Mr. Low was unable to leave the ship until May 3, and then only for a short period. Accompanied by two natives with a dog-team, he made a track survey and a geological examination of the coast between Cape Fullerton and the mouth of Chesterfield inlet, connecting the work of Mr. Caldwell with that of Mr. Tyrrell, so that there is now a continuous line of exploration along the west shore of Hudson bay, from York factory to the head of Wager inlet. On the return journey a trip was made inland from Winchester inlet, to obtain some knowledge of the rocks and country in this part of the interior. The general description of the coast previously given applies

to this portion and need not be repeated. From Cape Fullerton, for twenty miles to the westward, the rocks are chiefly fine-grained, dark-coloured, mica and mica-hornblende schists and gneisses, with occasional bands of dark, chloritic schists holding considerable disseminated pyrite, never seen however in quantities sufficient to be profitably mined. On the eastern side of this area these rocks are much contorted by intrusions of pink granite-gneiss. A few miles west of Fullerton they are very regular in strike and have all the appearances of highly altered bedded rocks, at one time probably largely clay-slates with interbanded traps. Within ten miles of the mouth of Winchester inlet this series of rocks is cut off by a great mass of granite-gneiss which occupies the coast to the mouth of Chesterfield inlet and which extends inland beyond the limits of the exploration.

The western coast of Hudson bay has been deeply glaciated ; several series of glacial striae marking the rock surfaces show that the centre of glaciation was at first to the westward, so that finally, the direction of ice-flow was nearly north and south.

Southampton island.

Mr. Low returned from this trip on May 13. Arrangements had been made (during the winter with Captain Comer) for the use of two of his whaleboats fully equipped, in which to accompany him to Southampton island, in the early summer. This exploration was made in the latter part of June ; Mr. Low, accompanied by Dr. Borden, left the ship on the 15th with a crew of two sailors and six natives, in company with the tour boats of the *Era*. The weather was still wintry, with heavy frost every night, while the wide margin of shore ice still remained quite firm and the surface of Roes Welcome was covered with large masses of floating ice. The boats were provided with cotton covers which completely enclosed them and afforded very comfortable sleeping quarters, small oil stoves being used for cooking. A narrow lane of water, between the shore ice and the moving pack, was followed northward to Whale point, where a delay of two days occurred owing to the state of the ice in the Welcome. Observations were taken for latitude and longitude and the rocks in the neighbourhood were carefully examined. About Whale point, series of old, much altered

Whale point.

bedded schists and gneisses are cut by two series of basic eruptives ; later, all these were intruded by granite, and finally all were cut by dikes of diabase. Although the conditions on the sea were still wintry, Spring had arrived on the land, where the snow was rapidly melting and the birds were busy nesting ; several nests of eggs were found, those of the snowbunting being most common. The crossing from Whale point to Southampton occupied two days and included some

exciting times when the change of tide brought the great floes of ice rapidly together and the boats had to be quickly hauled out to escape being crushed. One night was passed on a floating cake in mid-channel, where everybody slept as calmly and securely as on land. The low shores of Southampton were reached some twenty miles to the northward of Whale point and were then followed southward to Cape Kendall. At this point the boats of the *Era* left us to continue to the southern end of the island, while the others turned northward, making a number of landings, and finally reached a point about fifteen miles north of the original landing. From there the Welcome was recrossed, when heavy ice forced the boats again to the northward, so that the mainland was reached a few miles south of the mouth of Wager inlet. This coast was safely followed southward until the *Neptune* was rejoined on July 2.

That part of the Southampton shore examined was very low, with shoal extending several miles from the land. The land rose slowly inland in a series of low ridges of broken limestone separated by wide flats, which were partly covered with ponds and lakes, while the remainder of the surface was swampy and supported a fair growth of grasses and Arctic plants. These flats were the breeding grounds of many species of birds, including the whistling-swan, snow-goose, Hutchins-goose, king eider-duck, long-tailed-duck, blue-crane, golden-plover, red and red breasted phalaropes, Sabine gull and the Arctic tern. Unfortunately, at the time of the visit, the birds had only commenced nesting, so that eggs of several of the species were not taken, although specimens of the birds in full breeding plumage were obtained. A wide margin of solid ice, varying in width from two five miles, continually intervened between the water and the land. The exploring party were forced to live in the boats at the edge of the solid ice and every trip to the land had to be made over these distances of ice which, now covered with several inches of water and slush, rendered the undertaking both wet and very fatiguing. On the land, the ridges were bare, but much of the intervening country was covered with deep snow, so soft that in wading through it, the party sank to the waist. In consequence of these conditions, under which travelling into the interior became impossible, work was confined to the shore, and to five miles inland. A large collection of fossils was made at the different stopping places but the season was too early for plants.

Birds.

Towards the middle of July the daily change in the condition of the ice about the ship was marvellous, and on the 18th, the *Neptune* was able to break her way out of the harbour, after being ice-bound for nine months. Loose ice was encountered for a few miles beyond the

Summer chang

harbour, and then, with a jump from winter to summer, appeared the open sea and beautiful soft skies. The Southampton coast was followed, in order to confirm the statement of Captain Comer that it extended only to latitude 63 N. No ice was met with in the western part of Fisher strait, but after passing Walrus island, heavy fields on the north side gradually forced the ship towards Coats island, where, after crossing a wide bay studded with low islands, she passed within two miles of the high land forming Cape Préfontaine, the north-east point of the island. The point is about 400 feet high, and is formed of the crystalline rocks, which run south-west in a ridge across the island, the ridge being from five to ten miles wide, and contrasting strongly with the low limestone country on both sides of it. Heavy fields of ice were met with at the entrance to Evans strait, but, there being considerable open water between them, the ship was able to force a passage through by keeping to the southward. Along the shores of the island of Mansfield open water was found and followed to its northern end. The crossing from Mansfield to Digges was made through open leads with much heavy ice to the southward. Close heavy ice stopped all progress off Digges islands, and the ship remained tightly enclosed in the pack for two days, during which time the westerly current on the south side of Hudson strait drifted her about thirty miles to the eastward, past Erik cove.

Charles and

A narrow lane of open water close to the mainland was then followed eastward as far as a point opposite the eastern end of Charles island, when the ice again closed about the ship and drifted her to opposite the mouth of Douglas harbour, where open water was found and an uninterrupted voyage made to Port Burwell, which was reached on the 25th.

Disco island.

A week was spent there taking on board the cargo of coals and supplies from the relief ship *Erik;* then the *Neptune* was headed northward for the cruise through the Arctic islands. Heavy fogs prevailed for a few days and, when they lifted, the bold shores of the great island of Disco, lying off the coast of Greenland, were seen about twenty-five miles distant. Keeping well away from the coast the ship continued northward to the Duck islands and was then headed north-west to cross Melville bay to Cape York. This dreaded crossing was made in twenty hours and no ice was encountered.

Cape York.

At Cape York the ship, for the first time, came sufficiently near to the shores to allow of geological observations. The rocks forming the high cliffs from Cape York to Saunders island appeared to be all of Archæan age; granite-gneisses prevailed, and were associated, especi-

ally in the southern parts, with large masses of dark, basic rocks. Stress of weather forced the ship to anchor in Parker-Snow bay, where a landing was made to examine the rocks and glaciers about the bay. The rocks were largely a medium-grained, pink granite-gneiss cut by many quartzose dikes of pegmatite.

Saunders island.

At Saunders island, there is a change in the rocks forming the large islands and shores of the mainland. The Archæan crystalline gneisses and schists give place to nearly horizontal beds of light pink and buff sandstones, associated with what appeared from the distance to be thick beds of dolomite. Sills and dikes of dark-coloured trap cut these bedded rocks, and there is, throughout, evidence of more or less movement and faulting.

Geology.

This series of rocks has, owing to its sandstones and associated traps, been classed with the Tertiary rocks of Disco, though no search for fossils has been made, nor has it been accorded a close examination. The rocks occupy the coast northward to the vicinity of Etah, a few miles north of Cape Alexander, at the narrows of Smith sound, where they are again replaced by Archæan gneisses. At this northern contact there is undoubted evidence that the bedded series, greatly disturbed by the intrusion of the granite, has been thrown in several places into a nearly vertical position. Close to the contact, the rocks have been changed to either quartzite or crystalline limestone much lighter in colour than any of the beds away from the contact. Everything points to the alteration and disturbance of these bedded rocks by the intrusion of newer granite. Now, this rock must be late Tertiary in age if the bedded rocks belong to that formation, and it has all the appearance of the Archæan granite of Labrador. The bedded sandstones and their associated traps bear a close resemblance to the ancient Animikie rocks of the east side of Hudson bay, where similar contacts with the Archæan granites have been noted, and they are probably of this age.

A smaller area of these bedded rocks occurs on the west side of Smith sound, where it occupies the coast of Ellesmere island, from Cape Isabella for about fifteen miles to the southward, and has a similar northern contact with the Archæan rocks. Lack of time prevented a close examination of these measures on the Greenland coast, while, owing to the heavy ice, they could not be approached along the west side of the sound.

Smith sound.

During the night of the 10th of August, Smith sound was crossed from Littleton islands to Cape Sabine. The heavy arctic ice from the

northern part of the sound was only then beginning to pass southward, and the crossing was made between great sheets of ice, some of them miles in extent, and upwards of forty feet in thickness. A landing was effected at Cape Sabine, where a visit was paid to the last headquarters of Peary. The road led over dark red granite with traces of foliation in places. On the return to the ship a large pan of arctic ice drifting southward on the tide gave a startling exhibition of the latent power such a moving mass possesses. Surging towards the land, one corner came in contact with a rocky islet about twenty feet high, over which the ice, itself forty feet in thickness, pushed without retarding the progress of the pan.

An accident.

On the way across Herschell bay from Cape Sabine to Cape Herschell, the ship struck a submerged pinnacle of rock; luckily, she was under full steam and bumped over without stopping. Considerable damage was done to the keel, stem and stern posts, but as the ship did not make a great amount of water, little attention was given to the leak until the return to Halifax, when the damage was found to be quite extensive. The rocks at Cape Herschell were, like those of Cape Sabine, red granite gneisses.

An attempt was made to follow the shores of Ellemere island to the southward, and was successful for a distance of thirty miles to the southward of Cape Isabella, when thick weather and much ice forced the ship to the south-east away from the land.

Ellesmere island.

The shores of Ellesmere island rise abruptly to an ice-capped tableland, with an elevation of upwards of 2,500 feet. The coast is deeply indented by many bays, whose surfaces were still fast frozen. Only the outer prominent points were free of snow, while up the bays an occasional rocky piece projected from the deep mantle of snow. All the valleys were filled with great glaciers that discharged numerous large icebergs into the ice-covered waters of the bays. Not a tenth of the fore-coast was free of snow while the country to the rear was covered by a heavy ice cap. This condition is in marked contrast to that of the Greenland coast, on the opposite side of Smith sound, where the shores are free of ice and snow and the outer hills bare. This difference of climate is due to the Arctic current flowing south along the western side of the strait and to the prevailing easterly winds, which give clear weather on the Greenland side while the opposite shore is buried in fog.

The next land seen was some small islands, lying off the eastern point of Philpots island, near the entrance to Lancaster sound. Oc-

casional glimpses through the fog showed low rugged shores of Archæan rocks. During the following night, as the ship pursued a western course along the north side of the sound, the land was seen at intervals, with high rugged peaks of crystalline rock rising above the snows of the outer lands, with numerous discharging glaciers in the valleys, flowing down from the interior ice cap.

Croker bay.

On the west side of Croker bay the character of the country changes with a change of the rocks. The rugged hills of Archæan rocks give place to cliffs of nearly horizontal beds of light buff limestone, which rest upon the rounded bosses of the gneiss. At Coming creek, one of the many long narrow bays that indent the western part of the south coast of North Devon, these bosses of gneiss rise from 50 to 200 feet above the water and are capped by steep cliffs of limestone that rise abruptly to a height of 1,500 feet and then in gradual steps 500 feet higher, at which altitude they are masked by the ice cap of the interior.

Fossils of Silurian age are found only in the lower beds of the limestone. A few small glaciers discharge from the ice-cap in the vicinity of Coming creek, but only for a few miles to the westward, after which the ice-cap retreats and no glaciers are seen. The underlying gneisses gradually disappear beneath the water as the coast is followed westward, leaving only the limestone in the cliffs. These cliffs, minutely sculptured by the streams, appear to have been long exposed to the atmosphere, and thus resemble, on a grand scale, the cut banks of a stream flowing through a clay country. An excellent survey was made of this southern shore to Beachey island, at the south-west end of North Devon.

Erebus harbour.

The ship anchored in Erebus harbour and a landing was effected at the historical Beachey island, where the gallant but unfortunate Franklin, with the crews of the *Erebus* and *Terror*, passed their last winter in harbour ; thence they travelled westward in search of the North-west passage, only to perish on the coast of King William island, or, perhaps, in an endeavour to reach succour, further south. Here, also, the headquarters of the search expeditions from the eastward were established for a number of years ; the place, indeed, is redolent of the memory of gallant men enduring great hardships in the effort to rescue unfortunate comrades.

On the shore lay two large boats badly damaged by ice. On a low terrace immediately behind was the frame of a large storehouse containing many casks of provisions, partly broken and spoiled. Scattered about were hundreds of tins which had held a patent preserved meat,

and which had been opened, found to be rotten and condemned by the Franklin party. Broken casks, hoops and staves, with hundreds of leather boot-soles, were strewn everywhere. On the next terrace, a few yards behind the house, is the wooden cenotaph erected by the relief expeditions to the memory of the Franklin expedition, while, lying alongside, was the large marble slab sent as a token of respect to the gallant dead by American citizens, and left there by McClintock on his last voyage. On the plain, a few hundred yards away, four lonely graves and four small crosses mark the last resting place of two of Franklin's crew and two belonging to the relief expeditions.

Attached to the cenotaph was a sealed tin box, which was found to contain a record of the Norwegian Magnetic Pole Expedition, in the sloop *Gjoa*. It had been left in August, 1903, and stated that all were well on board and were bound down Peel sound. This record has been sent to the Norwegian government.

Beachey island.

A fine collection of fossils from the limestone of Beachey island was obtained, as also a collection of the few plants growing there. Looking north up Wellington sound and westward through Barrow strait, no ice could be seen from Beachey island. It was to all a matter for regret that our instructions limited the cruise westward to this place, and that the damaged state of the ship and the lack of an adequate supply of provisions forbade the attempt to make the North-west passage—an attempt which, with so powerful a ship and in so favourable a season, would, in spite of previous failure, have probably been successful.

North Somerset island.

From Beachey island, a crossing was made to North Somerset island, on the south side of Lancaster sound, and a stop made at Port Leopold, a fine harbour on the east side of the island, a few miles down Prince Regent inlet. The character of the island is very similar to that of the western part of North Devon already described. The limestone cliffs are not quite so high and the bays are wider and appear not to run so deeply into the land as those of the opposite coast. There is no continuous ice-cap, and consequently no glaciers, and the climate appears to be much milder than that of North Devon.

Port Leopold.

On the low point which forms the harbour of Port Leopold, the boiler, keel and lower timbers of a large steam launch were found close to the land-wash : this launch was brought out from England, some sixty years ago, by one of the Franklin relief expeditions. A number of cases of biscuit and butter, for the Norwegian Magnetic Pole Expedition, had been left, a few days before the arrival of the *Neptune*, by

the Scotch whaler *Windward*, and were piled against the boiler, with the Danish flag flying over them.

Numerous traces of an ancient Eskimo encampment were found on the point, and places were seen where the whalers had built fires to try out blubber.

Bylot island.

Shortly after leaving Port Leopold a thick fog completely hid the land, which was not again sighted until the ship was off the north-western end of Bylot island. The physical character of the island showed that the limestones had again given place to the rugged hills of Archæan rocks. The island rises in broken ridges with dark rocky peaks rising above the many great glaciers of the valleys, which flow down from a continuous ice-cap, situated from five to ten miles inland and rising fully 3,000 feet above the sea. The northern and eastern coasts of the island were followed to the mouth of Ponds inlet, the next great sound to the south of Lancaster sound and the gathering place of the Scotch whalers towards the end of July.

At an Eskimo encampment, just inside the mouth of the inlet on its north side, a pilot was engaged to take the ship to the whalers, some thirty miles up the inlet. On the way a second smaller encampment was seen on the same side and about five miles above the first.

Ponds inlet.

From the pilot it was learned that the native population of Ponds inlet consisted of thirty-five families, or one hundred and forty-four persons in all. Another small band lives to the westward, on the shores of Admiralty inlet. Members of both bands occasionally visit the northern part of Hudson bay, and, at other times, go to North Somerset, and even to North Devon, where there is excellent hunting for barren-ground caribou and musk-ox on the western part of the island, while bears and walrus are plentiful on the ice of the adjacent Wellington channel. During the summer, more than half the population journey inland to the south-west to hunt deer for the necessary clothing, the remaining able-bodied men being engaged in the whale boats.

Bylot island is everywhere high and rough. The continuous ice-cap seen from the coast does not extend much over ten miles inland, after which the land is mostly bare of snow in the summer. The interior of Baffin island is much lower, and there are great grass-covered plains where the caribou roam about in great bands.

Whaling.

The *Diana* and *Eclipse*, Scotch whaling steamers, were found at anchor close under a high plain of drift on the south side of the inlet,

and the *Neptune* dropped anchor alongside. The five ships engaged in the Baffin bay fishery had up to that date caught nine whales. Arctic salmon being reported very plentiful in a small river close to the anchorage, a short net was borrowed and two boats were sent on a fishing excursion. They returned in about an hour with fully a thousand fine fish varying in weight from three to ten pounds, the catch aggregating at least 5,000 pounds.

Topography.

A trip inland into the plain proved that the first terrace rose 200 feet above the sea, and stretched backward to the south and west in an uneven plain, deeply cut by small streams. An abundance of arctic plants gave evidence of a marked improvement of the climate in comparison with that of the lands bordering on Lancaster sound. The high gneissic hills to the eastward were flanked by terraces of drift, or rather of stratified sands, clays and gravel, which rose to a height of 500 feet above the present level of the sea. The presence of fragments of lignite in the bed of the Salmon river points to the age of these surface deposits being older than the glacial period. They are probably Tertiary, and have been undisturbed by the action of the glacier, which in this region does not appear to have been very active. Similar particles of lignite in similar association have been found at Cape Hay and at Durban island, both on the east coast of Baffin island, and there may be extensive deposits of this mineral. Owing to their distance inside the arctic circle and the uncertainty of the navigation of the northern seas, it is doubtful if these deposits of lignite will ever be of much value, but the presence of these deposits of ancient surface material may be important, if alluvial gold be found in Baffin island. In such a case, the ancient gravels, undisturbed by the later action of the glacier, would probably contain rich concentrations of placer gold in the old valleys of the streams. Of course, gold has not as yet been discovered in the rocks of this region and these remarks are only intended to draw attention to the possibility of extensive placer deposits should the precious metal be found in the rocks of that great area. Captain Adams reported having found copper ore loose in the drift, a few miles inland, from Clyde river,

Erik harbour.

Erik harbour, in a long narrow bay on the south side of the mouth of Ponds inlet, was the next place visited. The *Balaena* and *Albert*, of the Scotch whaling fleet, were found at anchor in the harbour, and the *Albert* had wintered here. Erik harbour is about five miles long and about a mile wide, the anchorage being at its head, close to the front of a glacier, which fills two-thirds of the valley. The south corner of the harbour is free of ice for about 300 yards where a small

stream discharges from a southern valley. The glacier flows down a wide north-west valley with rocky walls that extend outward to within half a mile of the sea. The division between the glacier and the southern valley is continued to the sea by a sharp ridge of boulder clay.

Glaciation.

This ridge is about two hundred feet high at the termination of the rock wall of the valley and gradually declines to fifty feet at the water's edge. The glacier is about a hundred feet thick along its front, where it discharges a few small icebergs into the bay, but its motion is so slow and the bergs are so small that no danger is incurred by the ships anchored close to its front. The glacier once filled the bay to its mouth, and the deposits of fresh boulder clay, on the rocky walls of the valley, show that its thickness then was sufficient to raise its surface four hundred feet above the present water level. The glacier has, at present, two lines of medial moraines upon its surface while much clay exists in patches on and in the ice.

A few miles to the westward of the harbour, several small glaciers descend short steep valleys, and break off before they reach the sea, so that they present low cliffs of ice. The strange part is that these glaciers rest upon thick deposits of stratified drift which are quite undisturbed by the glaciers passing over them.

This part of the coast is characterized by steep rugged cliffs of Archæan rocks, rising into sharp peaks, only slightly rounded, if at all, by the glacial action. The rocks about the harbour are chiefly a pink mica granite-gneiss but, in the boulders of the glacier, all the different gneisses and schists common to the sonthern Archæan areas were found.

Cumberland gulf.

The intention to follow the west shore of Baffin island soutward to Cumberland gulf, was prevented by the fogs and great fields of ice through which the ship had to force a way almost to the Greenland coast, and then back again, reaching the western shore a few miles north of Cumberland gulf. In marked contrast to the conditions prevailing at the same time in the previous year, the gulf was found full of heavy arctic ice and several days were spent going to and returning from Blacklead island. This heavy ice was finally left at Cape Haven and the ship again reached Port Burwell on September 4, where the supplies, left before going north, were taken on board again for conveyance to Fullerton.

Ungava bay.

During the absence of the *Neptune* in the north, Mr. Caldwell had remained at Port Burwell, with instructions to explore as much as

possible of the irregular eastern shore of Ungava bay and to make examinations inland. He reached a place about half way to the mouth of George river. Travel in the interior proved very difficult, owing to the high hills separated by deep valleys filled with long narrow lakes. The rocks are all Archæan ; granite-gneisses predominate, with a large amount of basic irruptives, such as gabbro and anorthosite. A considerable quantity of impure graphite was found and a deposit of impure iron ore, the value of which has not yet been determined by analysis.

Cape Wolstenholme.

On the return voyage through Hudson strait, a survey was made of the southern coast from Douglas harbour to Cape Wolstenholme, so that only a short distance between George river and the end of Mr. Caldwell's work remains unsurveyed on that side of the strait. The rocks along the western half of this coast appeared to be mostly red gneisses, with frequent areas of dark basic rocks. For several miles to the eastward of Cape Wolstenholme the characteristic rusty gneisses of that place largely occupy the face of the high cliffs on the shore. Two excellent harbours were discovered, one opposite the western end of Charles island, the other about halfway from that place to Cape Wolstenholme.

Salisbury island.

On the completion of this work, the ship headed northward and an examination of the north side of Salisbury island was made. Good harbours, where a ship might lie in safety if the water does not prove too deep for anchorage, were seen at the north-east and north-west ends of the island, in deep bays protected by islands. This side of the island is very bold, rising in steep cliffs directly from the water to a rough tableland with an elevation of 500 feet and upwards. The water along the islands is very deep, none of our numerous soundings touching bottom at 220 fathoms, the length of our sounding line. These are the deepest soundings in Hudson strait and Hudson bay. The tides are very strong around the island and evidence of the easterly current in the northern part of the strait was afforded by the stranded ice-bergs, two at the east end and one in the bay at the west end. As there are no glaciers discharging into the waters of Hudson bay, these bergs must have come from Davis strait. The rocks of the islands are all Archæan.

Return to Fullerton.

Bad weather and the danger, in the crippled condition of the ship, of meeting ice, forced a return south around Salisbury and Nottingham islands. The southern edge of the Fox channel ice, encountered a few miles beyond the western end of Salisbury, completely blocked the entrance to Evans strait ; the usual passage, therefore, south of Coats

island, was followed into Hudson bay, and Fullerton was safely reached on the 16th. The Scotch whaler *Active*, having on board the bone of two whales taken in Repulse bay, was met a few miles from Fullerton. Captain Murray gave information concerning the mica mine operated by the firm owning the *Active*. It is situated at Lake harbour, on the south shore of Baffin island, a few miles to the eastward of Big island. Nine whites and a number of natives are employed at the mine during the summer, the whites returning home in the ship. The output for the year is thirteen tons of mica.
cut

Several days were spent at Fullerton and then the *Neptune* headed eastward for Port Burwell; the passage south of Coats was again taken, and the ice was found to be some miles more to the southward and westward of its previous position. Burwell was reached on October 1, and, within an hour of our anchoring, the *Arctic* arrived to relieve the *Neptune*. The return to Halifax was safely accomplished and the voyage ended on October 12, having lasted almost fourteen months. Homeward bound.

Thanks are due to the gentlemen who formed the scientific staff of the expedition for their unfailing attention to the duties assigned to them and for cheerful assistance rendered by them at all times. Prof. Andrew Halkett made large zoological collections, including the skins and skeletons of mammals and birds, birds' eggs, fishes, marine invertebrates and insects. Dr. Borden, in addition to his surgical duties, made careful measurements of the natives, and enquired closely into their diseases; he also attended to the botanical collection and assisted with the weather observations. Mr. C. Frank King had full charge of the topographical work and has added materially to the accuracy of the charts of these northern waters. Mr. Caldwell made a number of valuable surveys and geological examinations, and assisted in many other ways. Mr. Ross kindly volunteered to assist Prof. Halkett, and proved of great help to him.

The following summary of the scientific results of the expedition shows, in a tabulated form, the importance of having trained scientific men on such expeditions, where, for a very small extra expenditure, a great amount of valuable information may be collected, without in the least interfering with the main purpose of the expedition. Summary of scientific results.

SUMMARY OF WORK ACCOMPLISHED BY THE OFFICERS AND SCIENTIFIC STAFF ON BOARD THE S.S. NEPTUNE, 1903-4.

The *Neptune*, from Halifax until her return to that port, steamed 10,000 miles. Of this 9,100 was in open water, and 900 miles through heavy ice. The distance steamed through ice is at least twice that of

the course shown, owing to the number of turns and twists required to work through the ice. In consequence the actual ice-mileage should be given as 1,800 miles, and the total 10,900 miles. This is probably the greatest ice-mileage ever made in one season by any ship.

SURVEYS.

Surveys.

	Miles.
Log and compass surveys of coast line, checked by astronomical observations, previously unsurveyed, or roughly sketched in by sailing vessels.	1,175
Numerous astronomical observations, for the position of Fullerton, and accurate chain and micrometer surveys of the harbour and environments of Fullerton	91
433 soundings, taken through six feet of ice, in the harbour and approach to Fullerton.	
During the time that the *Neptune* was at winter quarters at Fullerton, the western coast of Hudson bay was geologically examined from the head of Chesterfield inlet to the head of Wager inlet, and track surveys made of that distance.	610
While the *Neptune* was fast in winter quarters, a boat trip was made to Southampton island and a track survey and geological examination made of part of its western shore.	70
During the absence of the *Neptune* to the northward, a boat survey of the east side of Ungava bay resulted in the geological examination of.	95
Total mileage of surveys.	2,041

GEOLOGICAL AND NATURAL HISTORY WORK.

Geological and Natural History work.

In addition to the work mentioned above, geological examinations were made at every place touched at by the *Neptune*, and a considerable amount of information was obtained concerning the rocks and glaciers of the north.

Large collections of rocks and fossils were made.

A close study of the manners and customs of the Eskimos was made during the winter. Measurements of typical Eskimos were taken, together with a good series of photographs of these people and their habitations. The diseases of the natives were studied and reported upon. A census was made of all the natives of Baffin island and southern side of Hudson strait and the western side of Hudson bay.

A large collection of the northern birds was obtained, together with a very fine collection of the eggs of many rare birds, often accompanied by the nests.

A number of skins and skeletons of northern animals, including a group of six musk oxen, were prepared for museum purposes.

Several fishes of the northern seas and fresh waters were obtained and specimens preserved in formaline.

The use of the dredge secured important collections of marine invertebrates while those of the ponds were taken in nets.

A fine collection of arctic plants was made at the several places visited, and a number of interesting insect specimens was secured at the same time.

A great amount of information concerning the habits and distribution of the important animals, including the whales and seals, was obtained at all places visited.

METEOROLOGICAL OBSERVATIONS.

Meteorological observations.

Weather observations, including readings of thermometers, barometers, rain and wind guages, were taken daily throughout the voyage. During the winter months observations were taken at intervals of four hours.

ICE OBSERVATIONS.

Ice observations.

While in the ice, continuous notes were kept of the character, thickness, extent and kind of ice met with. These observations are particularly important in regard to the future commercial navigation of Hudson bay and strait.

In connection with this question, all the information possible was collected concerning the tides and currents of these waters, and also of the ice laden currents of Baffin bay and Davis strait.

Country Around the Headwaters of the Severn River.

By Charles Camsell.

Introductory.

Notification of my appointment to the staff of the Geological Survey reached me in Edmonton, together with instructions to proceed to Winnipeg, where I was to prepare for my field work. I left Edmonton on June 1 and reached Winnipeg on the 3rd where I remained

until the 10th awaiting further instructions and purchasing some necessary supplies. A letter of instructions reached me there, directing me to proceed to Dinorwic, and from there to make a survey of a route to Cat lake, defining and mapping the eastern boundary of an area of so-called Huronian rocks, whose western edge was examined by Mr. Dowling in 1893. On completing this work I was to go north from Cat lake across the height-of-land dividing the Albany from Severn river waters, and make a survey and examination of the rocks on the hitherto unexplored branch of the Severn river called the Lake or Cedar river, descending this as far as Severn lake to connect with a survey of the western branch made by Mr. A. P. Low in 1886.

The party, consisting of five men, was made up at Dinorwic; of these Mr. Greenshields and Mr. Dawes gave me valuable assistance during the summer, the latter in making independant trips to the east or west of the main route, and the former also in making independant trips as well as in the micrometer surveys.

Itinerary.

Outfit, provisions and two canoes were obtained from the Hudson's Bay Company at Dinorwic. The party left here on June 17 and travelled as far as Lac Seul in company with Mr. McInnes, who there turned north-east to the Albany river. At Lac Seul I hired an Indian guide to take us as far as Cat lake by the Wenasaga river route, a river which enters Lac Seul about two miles east of its western extremity. This route had been explored by Mr. Fawcett, D.L.S., some years ago, and in 1902 Dr. Wilson and Mr. Johnston of this department also made a micrometer and compass survey as far as Cat lake, from which point they returned following the Cat river to Lake St. Joseph and thence out to Dinorwic by the Hudson's Bay Co's usual route.

We reached Cat lake on July 15 only to find the place deserted by all except two Indians. It was necessary that the services of another guide should be obtained here to take us across the height-of-land and down the Lake or Cedar river, as our Lac Seul Indian had never been beyond Cat lake. A party of Crane Indians was expected from the north in a few days, so, in the intervening time, I made a micrometer survey of the shores of Cat lake, not knowing at the time that I was duplicating the work of Dr. Wilson and Mr. Johnston.

Mr. Williams' journey.

This work, on account of the stormy and unsettled state of the weather, occupied us until the 28th, and on our return to the Hudsons' Bay post I found Mr. Williams of Osnaburgh house. He had come straight across to Cat lake by a route hitherto travelled only by Indians. I obtained a copy of Mr. Williams' notes and some sketches of

the largest lakes; but he had no means of estimating his distances. The journey took him five days and he reckoned the distance to be somewhat over 100 miles. Shorty after leaving Lake St. Joseph he got on to the waters of the Attawapiskat system, and on these he travelled by river and lake to within a few miles of Cat lake. A rough sketch of the route has been prepared and incorporated in the accompanying map of the Cat lake district. Williams lake, which is drained by the Sand river and whose waters pass through Vermilion lake and river to the Attawapiskat, is the largest lake on the route, and is said by Indian report to be two days travel from one end to the other, or almost as large as Lake St. Joseph. Mr. Williams describes the geology to comprise the usual Archæan granites and gneisses with only one band of the darker basic rocks crossing the Vermilion river above Vermilion lake.

On July 29, the party left Cat lake, after, with much difficulty, obtaining the services of a young Crane Indian who was to act as guide down the Lake or Cedar river to Severn lake. Through a difficulty of interpreting my wishes correctly a misunderstanding arose, and he got the impression that we only wished to go as far as Pakhoan or Little Cedar lake, which is only about half way down the river to Severn lake. From Pakhoan or Little Cedar lake he refused to accompany us farther, and left for his own camp, while we had to find our way down the river alone.

The northernmost point reached.

On August 14, we reached our farthest north, a point fourteen miles below the junction of the Lake or Cedar river with the middle branch of the Severn, which the Indians call the Jackfish river. From here we were unfortunately compelled to return owing to a scarcity of provisions and our ignorance as to how far we were from Severn lake. I afterwards learned that another day's travel would have brought us to the lake and completed the survey.

In returning, short side trips were made up the middle and other branches of the Severn river, and Cat lake was reached on Aug. 30. The following week was spent in making a trip forty miles to the northwestward to a lake (Wigwasikak lake) which is said to be the headwaters of the central branch of the Severn river. Southward from Cat lake the route followed took us west from Wapikik, or what Mr. Fawcett calls Pine Channel lake, through a series of lakes and portages to the Shabumeni lake, defining the north-eastern boundary of the large Huronian area before mentioned; and from Shabumeni lake I followed Mr. Dowling's route of 1893 down through Woman lake and Trout lake river to Lac Seul, which we reached on Sept. 24.

On arriving at Dinorwic I found it necessary to go to Winnipeg to pay off my men and settle accounts, after which I proceeded to Ottawa, reaching here on October 10.

TOPOGRAPHY.

Area covered.

The area covered by the summer's exploratory work is roughly enclosed by a parallelogram, the east and west angles of which are placed at Cat lake and Wigwasikak lake, the headwaters of the central branch of the Severn; and the north and south angles at Severn lake and the western end of Lac Seul. It occupies a part of the great uplifted peneplain of the Archæan protaxis, and is similar in character to that so frequently described by other geologists in its more thoroughly explored sections. The general relief is even lower than is usually found in other parts of the Archæan, and the maximum relief seldom exceeds 100 feet above the level of the water. There are a few exceptions, the most notable of which occur on the Severn river watershed, where some isolated hills attain a height of 130 feet. These are usually granitic eruptive masses, which sometimes have very precipitous slopes and are very noticeable features in the topography. Residual monadnocks of this description occur at Cat lake, Cedar (Kishikas) lake and at the mouth of the middle branch of the Severn river; while a range of hills, probably of similar origin, borders the western shore of Windigo lake about twelve miles to the east of Cedar river. The highest hill in the whole area is situated about three miles west of Greenshields lake. It rises 300 feet above the level of the water and is composed seemingly entirely of boulders and drift material. Similar hills and ridges of morainic material occur in the neighbourhood of the large one, also on the height-of-land between the Severn and Albany rivers, and in the country a few miles north of Cat lake. These hills form excellent land-marks and can be seen from a distance of several miles rising above the surrounding country. From the top of any one of them a good view is obtained, and everywhere we see the same gently undulating surface and even skyline typical of the Archæan area.

Lakes.

Lakes are more numerous on and south of the Severn river divide than on the area north of it. These all occupy more or less shallow rock basins eroded out by the action of the continental ice-sheet, their long axes usually lying parallel to the direction of the glacial striæ. Their shores are deeply indented and beaches are rare, a few sand beaches occurring only on Cat lake and Whitestone lake.

Streams.

The streams occupy only shallow valleys, and rapids and falls are common. In the distance between Greenshields lake and the mouth

of the middle branch (Jackfish river) the slope of the land is much more pronounced, and here the river has cut itself a fairly defined valley twenty-five or thirty feet in depth. A corresponding slope was noticed by Mr. A. P. Low on the western branch of the Severn river which he descended in 1886. There is no very decided fall in any one place, except a long steep slope marked by a series of shallow rapids, the majority of which can be run.

ARCHÆAN GEOLOGY.

Archæan rocks.

As has been already stated, the whole area is occupied by rocks of Archæan age, principally granites and gneisses, with a few bands of the darker basic rocks. The largest area of the so-called Huronian rocks lies to the south and west of Cat lake, and has been examined in different parts of its south and west borders by other members of this department. Mr. Dowling defined its western boundary and Dr. Wilson crossed it by the Wenasaga river route. It was crossed this year in two directions, one by the same course as Dr. Wilson, and the other by a route from Wapikik lake to Shabumeni lake. By the latter route, the north-western extension of the area was traced to a distance of twenty-five miles east of Shabumeni lake. The northern boundary of the area crosses Shabumeni lake about three miles north of its outlet, striking in a general direction north-easterly. The contact with the granitic rocks was not seen anywhere except at a point just east of Kay-gat lake, so that the boundary is only sketched in approximately, by following the strike of the rocks. On Shabumeni lake the strike is about 50°, on Birch lake from 105° to 120°, on Kay-gat lake 75°, and on the contact a couple of miles east of Kay-gat lake 145°. The eastern boundary of this area appears to be very irregular, running out into several long narrow tongues. As reported by Dr. Wilson the Wenasaga river flows through the area south-westerly for about twenty miles, and going up the river beyond this, the Huronian belt is replaced by very coarsely crystalline granites and some gneisses. Two narrow tongues, however, of basic rocks intervene before reaching Gull lake. One of these occurs on the Sesikinaga river and is perhaps a quarter of a mile wide. The other is crossed on the height-of-land between Cat river and the Wenasaga. The latter tongue is undoubtedly a continuation of the main body, for it was traced westward for a distance of five miles from the height-of-land portage. The other band may or may not be an altogether isolated area, but nothing resembling it in composition was noticed on the main area. The south-eastern corner of the main area extends very much farther eastward than any other part and it is probable that a much larger

Wenasaga river.

Valley of Slate lake.

and longer tongue projects out from here. The valley of Slate lake, which has been formed by the erosion of the soft calc schists, which make up this portion of the belt, can be traced eastward for six or seven miles beyond the lake, at which point it bends slightly to the southward, running approximately in the direction of Goose lake. Dr. Wilson also examined an area of Huronian rocks north of the east end of Lac Seul; but it yet remains to be proved whether this area is continuous with the one on Slate lake. This I intended doing on my way back from Cat lake; but was unfortunately prevented by the impossibility of getting any guide to take us through that country.

Cedar river

North of Cat lake and on Cedar river there is an almost unbroken continuation of the granites and gneisses, with a predominance of the red granite variety. In a few places basic inclusions in the gneisses might indicate that larger bodies of the same rock would be found in the near neighbourhood; and the following places might be mentioned where such conditions occur:—on the lake at the head of Cedar river; on the lower end of Cedar (Kishikas lake); on Cedar river at the mouth of the Francis river.

A very narrow band of hornblendic rock crosses Cedar river a few miles above the junction of the Windigo river; while a much wider band is met with just below the mouth of this river. Here Cedar river takes a sharp bend to the west and flows in this direction for ten or twelve miles. The cause of the deflection is its entrance into this band of softer rocks, which it follows until it strikes against a steep bluff of eruptive rocks at the south-west angle and is again deflected into its original course. The southern boundary of this belt follows closely the course of the river in its western trend; but its northern contact with the granite is covered by a layer of drift and could not be accurately placed. Its width is perhaps two miles, and the strike slightly north of east. The central branch of the Severn river joins Cedar river in this belt of Huronian, and occupies a shallow valley in the wide depression caused by the excavation of these soft hornblendic rocks. Few outcrops of this belt occur, for the drift covering becomes much thicker in the lower parts of Cedar river. Dawes falls, just below the junction of the two streams, where the river has a drop of twelve feet, is caused by a band of hard siliceous hornblende-schist striking diagonally across the river and dipping down stream at an angle of 45 degrees.

The large area of these basic rocks south of the height-of-land has been referred by Mr. Dowling to the Keewatin series, and the two narrow bands which are seen on Cedar river, through their litho-

logical similarity to the large area, may also be referred to the Keewatin.

Samples of the different varieties of rocks occuring in the several Huronian belts were taken, and thin sections are being made of those whose mineralogical composition could not be readily determined in the hand specimen. The Severn river specimens are all hornblendic rocks varying from a massive amphibolite to a siliceous hornblende-schist. The latter is closely associated with a coarsely crystalline rock composed essentially of hornblende and quartz, and no doubt the one is simply a phase of the other.

Rocks on Wenasaga river.

The rocks on the Wenasaga river have been referred to by Dr. Wilson in the Summary for 1902; but one occurrence, which appears on the Sesikinaga river, and which he consequently did not visit, show an interesting contact. A narrow band of pyroxenite, showing considerable metamorphism, and alteration on the surface to serpentine, is separated by a band of granite from a hornblende schist having alternate layers of quartz and hornblende in very thin laminæ. Closely associated with these exposures, and at no great distance from them to the east, is an outcrop of what Dr. Barlow has identified as a quartz-mica diorite. All of these strike about N. 60 E. and are separated from each other by narrow bands of later intrusive granite.

The greatest variety of specimens was taken from Birch lake and the Shabumeni river, along the northern boundary of the large belt. Near the contact with the granitic gneisses the rock is a mica-schist which changes shortly to spotted chloritic and hornblendic schist. West of these, along the route, the following rocks are found: slate, conglomerate, quartzite and an altered quartz porphyry, massive fine-grained diorites, amphibolite and hornblende schist. Certain portions of the quartzite are highly impregnated with iron sulphide. The diorites are cut by numerous veins of quartz ranging in width from a few inches up to eight feet, and highly mineralized.

GLACIAL GEOLOGY.

Glacial geology.

The whole area exposed shows a predominance of the action of erosion over that of deposition. In the central portion about the height-of-land, drift material covers a very small proportion of the surface, while bare rock exposures are common. These are always smooth and frequently still retain the glacial markings. The general outline of the lakes conforms to the direction of the striæ, which at Cat lake is about N. 70 E., and they usually occupy shallow rock

basins. A few of the lakes on and about the height-of-land occupy basins formed by an unequal distribution of morainic material. Cat lake itself is an example of the erosive force exerted by the moving ice. Its long axis lies N. 70 E., while several long narrow bays cutting into the western shore have the same general trend. Many of the islands are composed of drift material, and conform to the direction of the striæ. They are long and narrow with rounded tops and gently sloping sides composed largely of boulders and having the appearance of drumlins or sowbacks. Whatever drift there is, is made of material carried presumably but a short distance, boulders of granite and gneiss; but I also noticed some erratics of a hard bludish limestone, which could only have been brought from the Palæozoic area bordering Hudson bay. A large number of bearings of the glacial striæ on Cat lake were taken. The average gives a reading of N. 70 E. On Birch lake, two sets occur on the same exposure, one giving 55° and the other 65°. The latter, however, is the more constant. On Cedar river few striæ occur; those near the head water conform in a general way to those on Cat lake. One reading near the mouth of Windigo river shows a great divergence to all the others, being N. 12 E., and the indications are that the movement was apparently towards the north instead of away from it. This is an isolated case, and no other striæ occur anywhere near it to check it. All the evidence, however, of the movement of the ice north of the height-of-land agrees with the results obtained by other explorers in this region, that the ice movement was southward instead of northward.

Lower down Cedar river the covering of drift becomes thicker. Sedimentary clays form cut banks fifteen feet high on the river just above the south-west angle.

Moraines and sand plains.

Moraines and sand plains are numerous on the height-of-land, also in the neighbourhood of Pakhoan or Little Cedar lake. Some of the former have been mentioned before as forming some of the principal typographic features. Two long parallel north-east and south-west ridges, rising to a height of 120 feet, are crossed in making the portages over the height-of-land. But the most important glacial hill occurs near Greenshields lake, and is 300 feet above the level of the water. It lies east and west with prominent peaks at either end, each higher than the centre of the ridge. From peak to peak is about half a mile, and beyond this the ridge slopes gently away to the level of the plain. The east and west sides are exceedingly steep, the slope being determined entirely by the angle at which the material of which it is composed will rest. It is composed entirely of boulders and gravel.

A number of lower ridges and hills of the same material are irregularily scattered around the larger one.

Several moraines have been laid across the valley of Cedar river, and some of these deflect the course of the river, while others are cut through and form shallow rapids. About ten miles below the junction of the middle branch of the Severn a moraine, lying at right angles to the course of the stream, had dammed up the waters and formed a lake nearly three miles long and a mile wide, which, on the cutting down of the dam, has been transformed only recently into a huge meadow.

TIMBER, SOIL, ETC.

Spruce, poplar, banksian pine and birch are found everywhere over the whole district. White and red pine were only noted in the southern part of Lac Seul. One solitary white pine tree occurs on Slate lake, and this appears to be the northern limit of the tree in this district. Ash trees were observed here also for the last time on our way north. The white cedar is a rare tree; but it occurs on the east end of Slate lake, on Sesikinaga lake, on Cedar (Kishikas) lake, and also on Greenshields lake. On the shores of the last a few rusty looking trees are growing, and this is their northern limit. Mr. Williams, in his traverse across from Osnaburgh to Cat lake, reports seeing ash trees for the last time on the east shore of Elbow lake. Timber.

Large areas have been burnt along the route of the Wenasaga river, notably at Wenasaga lake, ten or twelve years ago, and at Big Portage lake, about five years ago: also on Gull lake. North of Cat lake, we enter, at the lower end of Cedar (Kishikas) lake, an area that has been burnt probably eight or nine years ago, and this extends to a few miles below the mouth of the Francis river, or a distance of over thirty-five miles. Eastward it extends at least to Windigo lake, ten or twelve miles to the right of the river, and westward as far as could be seen from the tops of the highest hills. This is generally being reforested with a second growth of banksian pine and poplar.

In very few places, either on the north or the south sides of the height-of-land, do the spruce and tamarack attain such a size as to make them economically important to the lumbering industry. On the shores and islands of Birch lake the best timber occurs; that on the branches of the Severn river is generally small.

Beyond the Hudson bay post at Lac Seul no farming of any kind is done. At Cat lake, some years ago, potatoes and other hardy vege- Farming.

tables were grown with indifferent success, but this has now been discontinued. Being so near the height-of-land they are liable to frosts at any time during the summer. When we were there a sharp frost occurred on the night of July 31, and also on August 6. The Crane Indian chief, who has built himself a house at Windigo lake, every year raises a small crop of potatoes, which he first obtained from Trout lake posts. A great part of the country is either too rocky or swampy for agricultural purposes, and nothing will ever be grown on it, but there are portions, particularly in the large belt of Huronian rocks, and in some parts of the valley of Cedar river, where the land is dry and the rocks are covered with a clayey soil that is good enough to raise some of the hardier vegetables. The region around the mouth of the Anamabine river is such a country, as also the clay belt below the mouth of the Windigo river. As a rule, however, the dry land only occupies a fringe along the water courses, while the country back of this is largely muskeg or rocky.

Game and fish.

Moose and cariboo are fairly plentiful in the Shabumeni and Birch lake section; and bears were frequently seen on the lower parts of Cedar river. White fish, pike and pickerel were caught with a net in all the larger lakes; but no trout were got anywhere. Sturgeon ascend Cedar river as far up at least as the mouth of the Windigo river, and in several places the natives have gone to a great deal of trouble in building weirs across the river to catch them.

Much delay was caused in our work by the inclemency of the weather, and the disadvantage of travelling through parts of the country without a guide. The season was very wet and cold, frosts occurring in every month. Snow fell first on September 10 and again on the 19.

Flow of the streams.

The discharges of all the larger streams were taken, and the fact established that what was considered to be the main branch of the Severn river is really not so large as the Cedar river branch. The discharge of these two streams was taken near the end of August, when the water was at its lowest stage. Cedar river was found to give 735 cubic feet per second, and the middle branch 503 cubic feet. At the junction, the middle branch is wider and deeper than the eastern branch, and it would appear to carry much more water; but there is a great difference in the relative velocities.

NOTE.—All bearings in this report are magnetic.

The Upper Parts of the Winisk and Attawapiskat Rivers.

By Mr. William McInnes.

Region explored.

In accordance with official instructions the season of 1904 was spent in an exploration of a part of the District of Keewatin lying to the north east of Lake St. Joseph. The Winisk river, from Weibikwei lake to the sea, was surveyed last season, and the present summer's work was designed to supplement that of last year by an exploration of the upper stretches of the Winisk, and of the Attawapiskat to the south of it.

The ordinary canoe route was followed from Dinorwic, on the Canadian Pacific Railway, to lake St. Joseph, at the lower end of which the season's work was begun. This point had been fixed geographically by Thomas Fawcett, D.T.S., by a line run in 1886, and the micrometer survey was accordingly started there.

Route followed.

An Indian canoe route leading northward to the headwaters of the Attawapiskat river promised to afford the most ready access into the interior, and this was followed. A Rochon micrometer telescope and a surveyor's compass were used for the survey, the northing being checked by latitude. From the extreme north-easterly bay of the lake a portage was followed leading to the smaller Annimwosh (dog-hole) lake, which discharges south-westerly into the next westerly bay of Lake St. Joseph. Ascending the inlet in a north-westerly direction, the larger Annimwosh lake was reached by a short portage. These lakes are shoal and studded with small islands and projecting boulders. The water is very dark in colour, showing the influence of drainage from large areas of muskeg : the temperature, early in July, was 58° Fahr. Green forest of eighty years' growth surrounds the lakes.

Forest growth

Black spruce and tamarack are sparingly scattered over the muskeg areas : poplar, white birch, spruce and banksian pine clothe the ridges. The trees are not of large size, averaging from ten to twelve inches in diameter at the stump.

Rocks.

Biotite gneisses, generally fine in texture and well foliated, striking north-east, occur in low, rounded ledges all around the lakes. Continuing up stream, Kasageminnis (island) lake, the next in the chain, has the same general characteristics. A few miles of river connect this lake with the Wichig (fisher) lakes, the larger of which is six miles long. With the exception of a narrow belt of hornblende schist just

south of the Wichig lakes, representing probably the diminishing end of a Keewatin belt, the gneisses before noted occur throughout. Green forest continues as before and in favourable situations, such as flats extending back from bays, the trees are tall, free from branches and have diameters of from thirteen to fifteen inches at the stump.

Keewatin belt.

Two portages aggregating a mile in length lead across the height-of-land to Wimbobika (hollow-rock) and Kapkichegima lakes, lying nearly at the source of the south-west branch of the Attawapiskat river. They are long narrow bodies of water extending north-easterly, in troughs parallel to the foliation of the underlying gneisses, for four and thirteen miles respectively. Between the two a low ridge of Keewatin rocks is exposed, made up principally of feldspathic and chloritic schists. By way of Minominatikoka (rice-stalk) brook, entering Kapkichegima from the north, near its eastern end, there is an Indian canoe route to the head of the middle branch of the Attawapiskat and to Cat lake.

Kawinogans river.

The water of these lakes was clearer and of higher temperature, 64° Fahr. ; indicating a less swampy drainage area. The outlet of the lake, a stream about a chain in width, called by the Indians the Kawinogans (no doré) river keeps a general easterly and north-easterly course, with a fairly swift current and frequent rapids, for twenty-five miles to Kagabadesdawaga, a long narrow lake extending north-easterly for nineteen miles. Occasional exposures of chloritic and feldspathic schists occur along the banks of the river ; evidently a continuation of the belt of Keewatin rocks already noted. At the head of the lake a few ledges of hornblende granite gneiss occur, succeeded along the shore by biotite gneisses. The lake is underlain by deposits of a stiff blue clay, probably a boulder clay, covered by stratified beds, ten to thirty feet in thickness, of calcareous, siliceous clay and very fine siliceous sand. A rolling plateau of sand extends back from the lake to hills of unstratified drift rising two hundred feet above its level.

The Odoskwinnigemog (elbow) river, probably the longest branch of the Attawapiskat, flows into the lake a little more than half way down its northern shore.

This river comes from the north-west, heading about ten miles from the north-east end of Cat lake.

Kanuchuan river.

The united streams form the Kanuchuan (long rapid) river, which continues in an easterly direction to Kakagiwizida (crow's foot) lake, a shallow body of water ten miles in length and a mile in width. The

same rolling sandy plain surrounds the lake, falling in parts into extensive tracts of muskeg. On the south side of the lake, beyond an area of muskeg, the land gradually rises to about a hundred feet, where occasional glaciated surfaces of gneiss protrude from the drift covering. This sandy flat gradually rises southward for five or six miles, then it sharply rises to a ridge of gravel and boulders 300 feet above the lake level. Everywhere, excepting on the muskeg areas, there is an open forest of banksian pine of small size. Still keeping an easterly direction, with a stiff current and frequent rapids, at twenty-nine miles the river flows into Ozhiski (mud) lake, the largest body of water along its course. The lake is twenty-one miles long and a little over two miles in width at the broadest part. The biotite gneisses, which show in frequent exposures along the shores, occur in shelving ledges lying nearly flat or gently undulating. Fires have destroyed much of the old forest around the lake and along the river, the ages of the trees on different areas varying from twelve to over a hundred years. Occasional trees, growing in favourable locations, reach diameters of eighteen inches, but the general average is small. From the northern side of the lake, about three-quarters of the way down, the main river flows out by three channels that unite a few miles below and continue to Attawapiskat lake. In order to tie the micrometer survey to the work of last year, a route to Fort Hope, leaving the extreme eastern end of Ozhiski lake by a half mile portage, was followed to Eabamet lake, where connection was made with the earlier survey.

Forest.

The bulk of the provisions was *cached* at the forking of the routes, and picked up again after a few days, when the river was again followed. After leaving Ozhiski lake the river flows northwards with swift current and heavy rapids for fifteen miles to a sharp bend easterly, receiving at the elbow the waters of the Pineimuta (partridge's crop) river flowing in from the west. This is the north branch of the Attawapiskat. For the first few miles it is broad and smooth, flowing between banks of clay and sand. A fall of considerable height then occurs, above which the Obikwatawanga river, draining a large lake known as the Totogan (quaking bog), joins it from the south-west. After an extremely circuitous course it heads to the south of the upper branches of the Winisk river. The united rivers form the main Attawapiskat river, which keeps a general easterly direction for twenty miles to Lansdowne lake, with Kabanea (many points) lake on its course. A number of rapids occur along this part of the river, but they are all easily run with loaded canoes.

Pineimuta river.

Clay and sand. This whole region, including the country about Ozhiski lake, is characterized by thick deposits of clay and sand, the latter with thin, lenticular layers of limestone holding approximately 57 per cent of calcium carbonate. Two specimens of the clays were examined by Dr. Hoffmann, one from this area and one from further up the Kanuchuan. They differ only in their lime content, and are described as clays, containing a large quantity of siliceous grit, slightly ferruginous, feebly plastic, readily fusible, containing from 27 per cent to 30 per cent of calcium carbonate. Though of no use as clay, these deposits should form a good soil for agricultural purposes.

Winisk river. Weibikwei lake, on the Winisk river, was reached from Lansdowne lake in four days The river from this point to the sea was surveyed last year, and this summer the exploration was continued up stream. The ascent of the river was comparatively slow, owing to the constant recurrence of very long irregular lake expansions with stretches of quick water between.

The zigzag course of the river has been determined by the occurrence of a succession of glacial drift ridges lying parallel to the course of the striæ. The river occupies the narrow valleys between these ridges in the form of long finger-like bays with short connecting channels where the river breaks through at low points. Ten miles up, the northern channel flows off into the Winisk river below Weibikwei lake, the whole distance made up of long finger-like bays running N. 30° E. and S. 30° W., with intervening short stretches of rapids. Ten miles more of swift water and rapids are then succeeded by twenty miles of most irregular lake expansion, with the same long parallel arms, often separated by quite narrow ridges of drift.

Wapikopa lake. Wapikopa (high-and-low trees) lake, thirteen miles long, with a long bay stretching to the north for eighteen miles, occurs above another stretch of swift water. A tributary from the north known as the Wapikopa river comes into the head of the northerly bay. Ten miles of rapids and strong current intervene between this lake and Nibinamik (spring-beaver) lake, a body of water of similar character, its shape defined by the ridges of glacial drift that bound it.

Nibinamik lake. Above Nibinamik lake the river, coming from the west, is for some distance broad and deep, with a quiet current and only occasional ripples. A section across it at one of these points gave a width of 280 feet and a depth varying from one foot to twenty feet, with an average current of about two miles an hour.

The only rocks exposed along the river are biotite gneisses, lying in broad, low undulations, but much disturbed by later intrusions of coarse, pegmatite-like rock of similar composition. Gneisses.

The forest growth is much the same as that already referred to along the Attawapiskat. Though too small for timber, excepting in limited areas, the spruces would apparently make an excellent pulp wood.

From the south end of Nibinamik lake an old Indian winter trail was taken, leading southwards by a remarkably straight course to the Attawapiskat river above Lansdowne lake. The route led through a series of comparatively small lakes lying near the head waters of small rivers draining into the Winisk and Attawapiskat rivers. The journey is one of about eighty miles, and includes thirty-one portages aggregating ten miles in length. The areas of muskeg are many and extensive, most of the portages crossing tracts of swamp. Winter route

With the exception of a small area of Keewatin rocks, biotite gneisses are exposed at intervals the whole way across. The route joins the Attawapiskat by a small tributary coming in on the north side eight miles above Lansdowne lake.

The region explored may be said, in a broad way, to consist of an elevated plain 800 to 1,200 feet above sea level, reduced by a long period of denudation to the gently undulating surface so generally characteristic of the great northern Archæan area. General description.

Deposits of drift material apparently of glacial origin are very extensively distributed over the whole region, and form the most striking feature in its relief. They occur both as unmodified deposits and as redistributed material that has been laid down under water.

The region of the upper Attawapiskat valley and that lying between it and the Albany river are characterized by many east and west ridges of drift, rising steeply to sharp edges and composed of gravel and boulders. Along the sides of the ridges great depressions, like inverted cones, 300 feet across at the top and 100 feet or more in depth, are common. These deposits seem to be such as might be laid down during the retreat of a glacier. Evidences of the passage of such a glacier are everywhere apparent. Its direction, as indicated by the glaciated rock surfaces, was S. 30° W. to S. 40° W. over nearly the whole area, though in the valley of the Attawapiskat, and along the Albany, striæ were found running west or up the river valley. The frequent occurrence in the drift of pieces of fossiliferous Silurian limestone, Glacial striæ.

similar to that occurring along the west shore of Hudson bay, would seem to indicate that the gathering ground of the glacier lay beyond the shore of the bay.

Geology.

Archæan rocks only were found over the whole district explored. Biotite gneisses, varying but slightly in composition and always well foliated, are the prevailing rocks. They occur generally in broad, low undulations, but are much disturbed by intruded masses of coarse white granite or pegmatite.

Two belts of Keewatin, made up for the most part of massive diorite and diabase and chloritic and feldspathic schists, were noted, one occupying the valley of the Kawinogans river for a distance of about twenty-five miles, and the other, an irregularly shaped area lying immediately south of Nibinamik lake on the Winisk river.

Forests.

The forest growth over the district generally is not large, though on limited areas the spruces reach dimensions fitting them for sawing. At Fort Hope fairly clear nine-inch lumber was being sawn from trees cut near the shores of Eabamet lake. One tree was felled that gave a log over two feet thick at the butt and 100 feet long. The greater part of the forest is about eighty years old, though in places trees reaching 140 years were found. These old trees were on low-lying areas, that had escaped where the higher and dryer parts were burned, and were not generally large. Their growth-rings showed a rapid increase in size for the first fifteen years and afterwards an extremely slow growth. The large sandy tracts are now, for the most part, covered with an open growth of banksian pine, a tree of small commercial value. When the day comes in Canada for reforesting, these districts might be replanted with pines commercially valuable. Over large areas the spruces would, apparently, if more accessible, be available for wood pulp.

Black birch.

Specimens of a black birch that was noted last year in this district were brought home and handed to Professor John Macoun, botanist of this department, who submitted them to Dr. C. S. Sargent for determination. Dr. Sargent has named this birch *Betula fontinalis*, Sargent, a species formerly confounded with *B. occidentalis*, Nutt. The range of this tree in the sub-arctic region is not yet known.

Specimens of this birch were found last year as far north as lat. 53° 35′ south of Weibikwei lake. This summer occasional trees were noted on the upper branches of the Attawapiskat river and in about the same latitude, between that river and the Winisk.

The depredations of the Larch saw-fly upon the tamaracks along the Winisk river were noted in last year's report. Since that time the ground covered by this insect has been extensive, and some idea of the damage they have done may be given. Last season all trees along the Winisk river, from a point near the mouth to a point within a few miles of the Weibikwei lake, were stripped; south of that area they were untouched. During the present spring and early summer their ravages extended southward to the Albany river and westwards for sixty miles up the Winisk river and to about midway between Eabamet lake and Lake St. Joseph, on the Albany, an area of about 14,000 square miles. Larch saw-fly

The principal food fishes of the district are the sturgeon, doré or pike-perch, whitefish, pike and sucker, all of which occur plentifully and furnish the principal means of subsistence of the Indians. Fishes.

The ruffed and Canada grouse and various kinds of wild ducks are the principal game birds, and are fairly plentiful. Game birds.

Moose were noted along the Attawapiskat river, but were not so plentiful as further south. Caribou range over the whole district, and black bears are numerous. The smaller fur-bearing animals, including the otter, beaver, fox, pine-marten, fisher, mink and muskrat, are still fairly abundant. The skin of a raccoon trapped on the Attawapiskat river was brought into the post at Fort Hope by an Indian woman. The ordinary northerly range of this animal is south of Lake Superior, and so rare a visitor is it in this northern latitude that none of the Indians coming to the post knew what it was. Animals.

At Fort Hope post, garden vegetables maturing prior to August 31 and those unaffected by a few degrees of frost did well, but the potato plants were all killed on that date, the tubers being generally small and unripe. At Osnaburgh post much the same conditions prevailed, though the potatoes, which were being harvested on the last days of September, were mature enough, and, on a small tract of newly broken land, of good size and quality. An Indian, who cultivated a small patch of land near the head of the north branch of the Attawapiskat, claimed, when seen in September, that he had a good crop of potatoes. Horticulture.

Observations of the temperature on the upper branches of the Attawapiskat and Winisk rivers between July 5 and September 13 gave averages of Fahr. 47·5°, 61·6° and 58° at 6 a.m., noon and 6 p.m. respectively. The first frost noted was on the morning of August 28, and on the nights of the 30th and 31st the cold was sufficient to form Temperature.

ice on small pools and to kill all tender vegetation. Owing to the exceptionally wet season the average temperatures given above are probably a little lower than those of the normal season.

Inhabitants.

The only inhabitants are roaming bands of Indians, belonging partly to the Salteux branch of the Ojibway tribe and partly to the Plain Crees of the west shore of Hudson bay. They live entirely by fishing and hunting, obtaining their powder, shot and other necessaries that the country does not supply by trading furs at the posts of the Hudson's Bay Company. The only known attempt at agriculture was that made by an Indian on the Attawapiskat river, who had planted a few potatoes obtained at Fort Hope post.

A small collection of land and fresh water shells was made and Dr. J. F. Whiteaves furnishes the following list of species identified :—

List of Land and Fresh-water Shells from the district of Keewatin, collected by Mr. Wm. McInnes in 1904.*

By Dr. J. F. Whiteaves.

A.—Land Shells.

Vertigo ovata, Say.

Land shells.

Minnitaki river, English river and Lac Seul, several specimens; Kawinogans river, Attawapiskat, three specimens; Rib lake, Albany river, four specimens; Wapikopa lake, Winisk river, one specimen.

Conulus fulvus (Muller).

Lake St. Joseph, three specimens; Kawinogans river, ten specimens; Rib lake, Albany river, ten specimens; Minnitaki river, fifteen specimens.

Zonitoides arboreus (Say).

Lac Seul, two specimens; Kawinogans river, five specimens; Rib lake, Albany river, eight specimens; Mistassin lake, one specimen; Winisk river, two specimens; Wapikopa lake, Winisk river, three specimens; Nibinamik river, Winisk river, two specimens.

Vitrea hammonis ? (Ström).

Rib lake, Albany river, one specimen.

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* The *Vertigo* and most of the critical species of *Sphærium* and *Pisidium* in this list have been kindly determined by Dr. V. Sterki.

Pyramidula striatella (Anthony).

Lac Seul, four specimens ; Lake St. Joseph, six specimens ; Kawinogans river, several specimens ; Rib lake, Albany river, four small specimens ; Mistassin lake, four specimens ; Winisk river, one specimen ; Wapikopa lake, Winisk river, several specimens ; Kibinamik lake, Winisk river, three specimens.

Succinea vermeta, Say.

Lac Seul, five specimens ; Minnitaki lake, seven specimens ; Kawinogans lake, Attawapiskat river, four specimens ; and Rib lake, Albany river, one specimen ; Winisk river, one specimen ; Wapikopa lake, Winisk river, one specimen ; and Nibinamik lake, Winisk river, two specimens.

Succinea retusa ? Lea.

Succinea ovalis, Gould, non Say.

Winisk river, two specimens ; Wapikopa lake, Winisk river, one specimen.

B.—Fresh-water Shells.

Pelecypoda.

Lampsilis luteolus (Lamarck).

Kawinogans river, one specimen.

Anodonta marginata ? (Say).

Anodonta fragilis, Lamarck.

Attawapiskat river, two specimens ; Pusabiwan river, Attawapiskat river, one specimen. Fresh water shells.

Anodonta Kennicotti ? Lea. Var.

Lake St. Joseph, two specimens ; Attawapiskat river, two specimens ; Kawinogans river, Attawapiskat river, one specimen.

Sphærium simile (Say).

Ozhiski lake, Attawapiskat river, three specimens ; Wijig river, Attawapiskat river, thirteen specimens ; Pusabiwan river, Attawapiskat river, several specimens ; and Mijigamog lake, Attawapiskat river, one specimen.

Sphærium Walkeri, Sterki.

Attawapiskat river, fifteen specimens.

Sphærium emarginatum, Prime.

Attawapiskat river, one specimen. Dr. Sterki thinks that *S. emarginatum* may not be specifically distinct from *S. stamineum*, Conrad.

Sphærium stamineum (Conrad).

Kawinogans river, seven specimens.

Sphærium——— ?

Root river, two perfect specimens and one odd valve.

Sphærium (*Musculium*) *secure*, Prime.

Kawinogans river, one specimen.

Sphærium (*Musculium*) *partumeium* (Say).

Kawinogans river, two odd valves.

Pisidium compressum, Prime.

Pisidium altile, Anthony.

Ozhiski lake, Attawapiskat river, one immature specimen; Winisk river, six specimens; Kawinogans river, ten specimens.

Pisidium fallax, Sterki, var. *errans*, Sterki.

Ozhiski lake, two specimens.

Pisidium variabile, Prime.

Kawinogans river, two specimens.

Pisidium affine, Sterki.

Kawinogans river, 'two valves, small and probably not full grown' (Sterki).

Pisidium Sargenti, Sterki.

Kawinogans river, two separate valves.

Pisidium——— ? (near *P. abditum*).

Ozhiski lake, two specimens.

Pisidium scutellatum, Sterki.

Ozhiski lake, four specimens of a small form of this species; Kawinogans river, six similar specimens.

Pisidium splendidulum, Sterki.

Ozhiski lake, two specimens.

Pisidium, sp. nov. ?

Ozhiski lake, two specimens.

GASTEROPODA.

Valvata tricarinata, Say.

Lake St. Joseph, one specimen; Kawinogans river, twelve specimens at one locality and six at another, Ozhiski lake, one specimen; Wapikopa lake, Winisk river, three specimens.

Valvata sincera, Say.

Kawinogans river, four specimens of a remarkable, small and partially uncoiled variety of this species; Attawapiskat river, two small specimens.

Amnicola limosa, Say. Var.

Lake St. Joseph, seven specimens; Kawinogans river, at three localities, several specimens; and Ozhiski lake, one specimen.

Limnæa megasoma, Say.

Island in Lake St. Joseph, four adult living specimens.

Limnæa stagnalis appressa.

Lake St. Joseph, four specimens; Kawinogans river, two specimens; Weibikwei lake, Winisk river, two specimens; Ozhiski lake, two specimens; Wapikopa lake, Winisk river, five specimens.

Limnæa catascopium, Say.

Mistassin lake, Attawapiskat river, nine specimens; Kawinogans river, thirteen specimens; Attawapiskat river, three specimens; Winisk river, at two localities, several specimens; Ozhiski lake, a few specimens from three different localities.

Limnæa galbana (Haldeman) Dall.

Kawinogans lake, Attawapiskat river, three small specimens; Kanuchuan river, Attawapiskat river, eighteen specimens; Ozhiski lake, four small specimens; Attawapiskat river, one small specimen; Wapikopa lake, Winisk river, one specimen.

Planorbis trivolvis, Say.

Ozhiski lake, two specimens; Machawaian lake, Attawapiskat river, two specimens; Wapikopa lake, Winisk river, nine specimens.

Planorbis corpulentus, Say.

Minnitaki lake, one specimen; Lac Seul, three specimens at one locality and one at another; Root river, two specimens; Sioux Outlook, English river, seven young specimens.

Planorbis bicarinatus, Say.

Lake St. Joseph, four specimens; Kawinogans river, one specimen.

Planorbis campanulatus, Say.

Lac Seul, three specimens; Kawinogans river, nine specimens; Elbow river, Attawapiskat river, seven specimens; Lake St. Joseph, four specimens; Winisk river, one specimen.

Planorbis albus, Muller.

Planorbis hirsutus, Gould.

Lake St. Joseph, three dead shells. Kawinogans river, two specimens from one locality and three from another; Attawapiskat river, two small specimens; Wapikopa lake, Winisk river nine specimens.

Segmentina, armigera, Say.

Kawinogans river, one specimen.

Physa heterostropha, Say.

Lac Seul, five specimens; Lake St. Joseph, two specimens. Ozhiski lake, three specimens; Machiwaian lake, Attawapiskat river, one specimen; Wapikopa lake, Winisk river, five specimens.

The Little Current and Drowning Rivers, Branches of the Albany, East of Lake Nipigon.

By Mr. W. J. Wilson.

Introduction. The work of the past summer was a continuation of that done last year. In 1903, time did not permit of the exploration of the region drained by the headwaters of the Little Current and Drowning rivers and their branches. Being informed that the Indians who hunt on the headwaters of these rivers trade at Long Lake House, and that guides could be easily obtained at that post, I left Ottawa, May 31, accompanied by Mr. W. H. Collins, B.A., of Toronto, as assistant, with instructions to examine the sources of the above-named rivers and to make a survey of the Pagwachuan river.

Itinerary. On June 15, we reached McKay lake, where we began a compass and micrometer survey, which we carried across the height-of-land to Pagwachuan lake; and thence north-east down the Pagwachuan river to its junction with the Kenogami, a distance of nearly 150 miles. We then went up the Kenogami river to Long lake reaching the Hudson's Bay Company's post, July 15. Here we secured a guide and supplies for six weeks and ascended the Devilfish river, following the route surveyed by Dr. Bell in 1870, to Wawong lake. From this lake we followed a series of portages and small lakes into Eskagenaga* lake, thence eastward to Wababimiga lake which drains into the Drowning river. From this lake four portages and three small ponds form a route to the main branch of the Drowning river. We descended this river, connecting our survey with that made by Mr. O'Sullivan last year. Returning, we ascended the river to its source in a long lake, from

* Previously mapped as Oskanaga.

which the canoe-route continues eastward, by a number of portages, small lakes and streams, and reaches the Kenogami river five miles below the mouth of the Devilfish river. Distance surveyed 225 miles.

We then went to Long Lake House for supplies but could get neither guides nor canoemen, so that we were compelled to undertake our third trip with the two canoemen whom we brought with us from Timiskaming. With two canoes and supplies for five weeks we again ascended the Devilfish river and followed the ordinary canoe-route to the portage to Wawong lake. The Kawashkagama river, which we followed from Fleming lake, was surveyed to this point by Dr. Bell in 1870, and by W. S. Davidson in 1900, to Howard fall, twenty-seven miles further down. Below this the river was unknown. From information gathered at the Hudson's Bay Company's post it seemed probable that this river is the upward extension of the Little Current which was explored and mapped last year, and this proved to be correct. We followed it to O'Sullivan lake and for twenty-five miles below, connecting with the micrometer survey of 1903.

Distance surveyed.

The distance surveyed on this trip was 123 miles, making a total for the summer of nearly 500 miles by compass and micrometer, besides a short track-survey down the Wababimiga river. We returned by Long lake and Pic river, reaching Heron bay, October 7, and Ottawa the following day.

PAGWACHUAN LAKE AND RIVER.

McKay lake to Pagwachuan.

In passing from McKay lake to Pagwachuan there are six small lakes or ponds and five portages. The longest portage is 193 chains and the five have a total length of a little over four miles. The soil is sandy and no rock exposures were seen. The height-of-land is between the fourth and fifth lakes and is fifty-five feet above McKay lake and 150 feet above Pagwachuan. The latter is about 900 feet above sea level, and is eleven miles long, varying from two miles to half a mile in width ; occasional low hills, from 75 to 100 feet, rise from the shores, and a thick growth of small spruce, poplar, fir, canoe-birch, tamarack and cedar is found everywhere round the lake.

The rocks along the western shores of the lake are a coarse granite-gneiss, amphibolite, biotite-schist and pegmatite. The schists strike N. 70° E. vertical ; biotite-schist, with masses of pegmatite, is the prevailing rock along the narrow eastern part. The river leaves the lake at the extreme eastern end. There are two short portages in the

first four miles and two lake expansions, from the lower of which the canoe-route leaves the river and follows a lake on the north side of the river for four miles ; in the next five miles come two portages separated by a small lake. The guide said that the part of the river thus avoided is blocked with driftwood and that about a mile below the point where we turned off there is a fall of 150 feet. The river is fifty feet wide, with slow current, where it connects with the portage at the east end.

Pagwachuan river.

For twenty-six miles below this portage the river runs almost due east and is from one to two chains wide with numerous rapids, but only two short portages. The low clay banks are densely wooded, for the most part with large spruce, poplar and cedar. The country, back from the river, is sometimes undulating, but no high hills were seen. The soil along the river where the drainage is good is of excellent quality. Rock exposures in this stretch were few ; biotite-schist, granite-gneiss, and granitite were noted. The schist strikes N. 60° E. and is nearly vertical. Many gneissic boulders lie in the bed of the river. They are mostly angular and do not seem to have been transported far.

G.T.P.R. tria line.

The river then turns north and flows in that direction for thirty miles. The Grand Trunk Pacific Railway trial-line, 1904, crosses about four miles north of the bend. The country here is rolling, with low, rocky and sandy hills covered with second-growth banksian pine and poplar fifteen years old. The rock, where the line crosses, is a mica-diorite-gneiss with bands of quartzite. The river at this point is 537 feet above sea level. Two miles farther down there are a fall and portage with a drop of eighteen feet. The fall is caused by a band of hornblende-granite-gneiss striking east and west ; just below the fall the rock is a fine-grained, reddish-weathering granite-gneiss.

Continuing north, the river becomes broader with numerous shallow rapids. The banks in places are high, showing twenty to forty feet of clay, sand or gravel, usually containing striated boulders in the lower part, with more or less distinct stratification above. Exposures of hornblende-granite-gneiss, diorite-gneiss, and mica-diorite-gneiss are common. These frequently contain epidote and quartz either in narrow veins or lenticular masses several inches wide. In one place the rock contains large irregular crystals of red orthoclase, which gives it a mottled appearance on the weathered surface.

Exposures on the river banks.

For the last thirty-five miles the river runs north-east. It is from four to six chains wide, and is very shallow, with a swift current and many rapids. The banks are low, seldom rising above fifteen feet, and

the whole country, as far as can be seen from the river, is flat. The last exposure of Laurentian rock is thirty-two miles from the mouth. It is a reddish hornblende granite-gneiss, well foliated, dipping N. 30° W. <85°.

Dolomite.

For twenty-three miles, following the bends of the river, no rock is seen in place. Then there is an exposure of a drab dolomite containing fragments of shells. From this point to the mouth of the river, a distance of nine miles, there are outcrops of the flat-lying dolomitic rock. There are ochreous-weathering bands succeeded by others, of a cream colour, filled with small cavities, and soft earthy layers of an olive colour. I made a small collection of fossils from these rocks, chiefly corals, which Dr. J. F. Whiteaves identifies as belonging to the Silurian system, and probably comparable to the Guelph group.

ESKAGENAGA, WABABIMIGA AND NESTABON LAKES.

Wawong lake.

The country adjoining the route *via* the Devilfish river to Wawong lake was described by Dr. R. Bell in 1870*

Wawong lake is two and a half miles long. The shore-line is very irregular, numerous sand and gravel ridges extending into the lake, forming deep bays. In two places a portage of only ten to twenty feet across a low neck of sand was required to pass from one bay to the other. The lake is surrounded by a rolling, sandy country covered, for the most part, by banksian pine and poplar. The water, as the Indian name implies, is very clear and of a bluish green colour. From Wawong lake the canoe route runs north-east through four small ponds and five short portages to Eskagenaga lake, a distance of two miles. The country along this route is similar to that round Wawong lake. There are no rock exposures, but there are some areas of good soil well wooded.

Eskagenaga lake.

Eskagenaga lake is over twelve miles long and averages about three miles in width. There are seven deep bays, and the whole shore line is irregular. It is studded with islands, some of considerable size, especially in the eastern part. Two or three small streams enter the lake ; the outlet, which flows into the Little Current river, is from the north-east arm. Several soundings were taken, showing a maximum depth of fifty-six feet. Depths of between forty and fifty feet were common near the middle of the lake. A portage leads from the north-west bay into O'Sullivan lake. The surrounding land is generally low,

* Report of Progress., Geol. Surv. of Can., 1870-71, p. 341.

but on the south an occasional hill rises 200 or 300 feet above the level of the water. Except in a few small areas, the forest growth is all small, being about thirty years old.

Rock exposures are common all round the lake. In many places, especially along the north shore, abrupt gneissic walls rise from the water. In going east along the south shore, from the portage by which we entered, the first rock seen is a compact gray granite-gneiss, containing basic bands and quartz veins. This is the prevailing rock for some miles, after which a mica-diorite-gneiss striking N. 55° E. is common to the east end of the lake. Near the outlet a beautiful reddish granitite-gneiss occurs in several places. Hornblende granite-gneiss, much contorted in some exposures and cut by dikes of diabase, quartz and pegmatite, are found along the north shore.

Wababimiga lake.

From Eskagenaga lake the canoe-route runs east for thirteen miles to Wababimiga lake, passing through five lakes and over six portages. The two largest lakes are each five miles long but less than a mile wide for most of their length. One portage is a mile and a quarter long : two others are half a mile. The land is generally level, swampy, and covered with a small growth of spruce and tamarack with occasional patches of banksian pine. Near Wababimiga lake there are some areas, of spruce and poplar growing on good soil.

Wababimiga lake is six and a half miles long and one to two miles wide and has a depth of forty-two feet. The land round the lake is low and rolling and generally covered with a small second-growth of canoe-birch, poplar and spruce. The stream draining this lake was followed to its junction with the Drowning river near the point where Mr. O'Sullivan completed his survey for last year. It is a clear, shallow river running over a gravelly bottom and can with difficulty be navigated by light canoes.

Drowning iver.

The route eastward from Wababimiga lake follows a deep bay to the south-east and then a small brook flowing into it for a mile and a half, when another series of four small lakes and five portages leads to the Drowning river, a distance of seven miles. The first portage on the west is over burnt ground with scattered banksian pine thirty years old. The other portages are mostly through Sphagnum swamps, with old growth of spruce and tamarack. We continued the survey down the Drowning river to connect with Mr. O'Sullivan's survey of last year. The river is about two chains wide and forms an easy canoe-route, as the portages are all short and most of the rapids can be run with empty or partly loaded canoes. The country is low and

level. Spruce is the principal tree along this stretch. Many of the trees are large enough for saw-logs while the majority would make good pulp-wood. They grow close together and are straight and tall, reaching a height of sixty feet or more and carrying their size well up.

Returning to the point where we first reached the Drowning river, we continued the survey for thirty-one miles to the south end of Nestabon lake, which seems to be the source of the river. In this distance there are five short portages to pass light rapids; also three lake-like expansions. Nestabon lake is ten miles long and is divided into two equal parts by a narrows. Its width is from a mile to a mile and a half and the greatest depth found was seventy eight feet. The Indians assert that some parts of this lake never freeze. The surrounding land is generally low and flat, except on the west side of the lower part, where there are hills 150 feet high.

Nestabon lake.

From the Drowning river there are two routes to the Kenogami. One of these leaves the former river about two miles above the portage from Wababimiga lake, and the other begins at the east side of the upper half of Nestabon lake. We took the latter route, a distance of twenty-four miles. There are four portages, aggregating four and a half miles, connecting small lakes and streams. Kawakanika, a beautiful lake on this route, near the Kenogami river, is, owing to the abundance of its fish, much frequented by Indians during the summer. The forest along the upper part of the Drowning river is a large second-growth, probably fifty years old. In this district there is a rather large area which was burnt in 1901, and second-growth prevails around Nestabon lake. In passing eastward from the lake the two long portages are through swampy ground on which are growing spruce and tamarack averaging eight to ten inches in diameter. On the eastern end there are dry, sandy knolls covered with banksian pine alternating with the spruce swamps. These portages lead to a shallow lake from which a river flows to Kawakanika lake. The land traversed by these is low and moss-covered; the forest is of the usual kind. Half a mile north of Kawakanika lake the two above mentioned canoe routes meet. The forest growth on the two last portages, and surrounding the lakes, is larger, and the land improves in quality as the Kenogami river is approached.

Kawakanika lake.

Rock exposures are of frequent occurrence along the route from Eskagenaga lake to the Kenogami river. Gray, finely foliated granite-gneiss, gabbro and hornblende granitite-gneiss are seen on the lakes and portages to Wababimiga lake. The gneiss strikes N. 80° W. On Wababimiga lake the same gneiss is seen in two places striking N. 80_

E., and on the river there are several exposures of the same rock. A fall of thirty-six feet on this river is caused by a band of dark gray gneiss dipping S. 28° W. $<80°$. Between Wababimiga lake and the Drowning river, granitite-gneiss and mica-diorite-gneiss, striking N. 45° E., were noted. On the Drowning river and Nestabon lake gray, granitite-gneiss is the common rock. The strike varies from N. 40° E, to N. 75 E.. The foliation in much of this rock seems to be vertical, but in one exposure the dip was distinct and was S. 50° E. $<45°$, and on a small island in Nestabon lake, it was N. $<30°$. These gneisses are mixed with bands of amphibolite, mica-diorite-gneiss and basalt dikes. One of these last, forty feet wide, cuts the gneiss on the west shore of Nestabon lake. Reddish granitite and granitite-gneiss are the chief rocks seen on Kawakanika lake and during the remainder of the route to the Kenogami river.

THE KAWASHKAGAMA RIVER.

Kawashkagama river.

The Kawashkagama river is the outlet of a number of lakes lying twenty-five or thirty miles north-west of Long lake. From its source to Kawashkagama lake it flows in a north-east direction. Then it runs almost due west for twenty-nine miles, when it turns to the north-east again and flows in that direction for thirty-two miles till it enters O'Sullivan lake. These distances are taken from the micrometer survey and follow the bends of the river. Below the portage to Wawong lake the river is from one and a half to two chains broad and mostly deep, with slow current. Between the portage and Rupert fall, a distance of eleven miles, there are only two rapids, and these may be run with loaded canoes, although there is a good portage at each. At Rupert fall there is a drop of fifteen feet and a portage of six chains on the right bank. Below this fall the river is about two chains wide, and continues crooked for twenty-one miles, where there is another portage to pass a log jam. Four and a half miles farther down is Howard fall, where the river cuts through a ridge of greenstone, making a cañon-like gorge from ten to fifteen feet wide for a distance of fourteen chains. This gorge is cut into the schists to a depth of twenty feet in places, and the water descends in steps and slides varying from one to five feet. The portage is on an island, and is seventeen chains long.

Abamisagi lake.

From this fall to Abamisagi lake, a distance of eleven and a half miles, the river is from two to three chains wide, with a slow current. There are three rapids, two of which require short portages. The river enters Abamisagi lake near the east angle and the outlet is only

half a mile distant. It turns round, as the name of the lake implies, and runs eight miles south-east into O'Sullivan lake. In this distance the river is broad and deep and there are three rather bad rapids which cannot be run with loaded canoes. Abamisagi lake is about eight miles long and two and a half broad with regular shores and few islands.

O'Sullivan lake.

O'Sullivan lake, the western part of which was mapped in 1903, measures seventeen miles from the north end to the extreme east, and has a breadth of from one to four miles. It has many deep bays and, as the Indian name Sesekenaga signifies, is full of islands. Its shores are comparatively low, but in places, especially in the north-east, the rocks rise abruptly from the water to a height of forty feet. On the south-west the land slopes gradually back from the lake to a height of from 100 to 200 feet, and, at a distance of four miles, there is a prominent hill which rises considerably higher. This hill can be seen both from Eskagenaga and Abamisagi lakes.

Timber.

Above Rupert fall the forest is small second growth about thirty years old. Below this fall, there are large areas of old growth with poplar and spruce two feet in diameter. Further down, much of the forest is second growth of sixty or seventy years. Black-ash groves were noted on the river near Abamisagi and O'Sullivan lakes. These trees are eight to ten inches in diameter and twenty feet high. Most of the forest round O'Sullivan lake is small second growth. There are some areas of good agricultural land along this river, though much of it is low and swampy.

Rupert fall.

Granite-gneiss and mica-diorite-gneiss striking N. 40° E. appear in occasional outcrops for five miles below the portage to Wawong lake. The next rock seen in descending the river is just above Rupert fall where a pyritous, schistose greenstone outcrops, dipping S. 40° E. < 70°. The contact between the gneiss and schist was not seen, as the country is drift-covered and several miles separate the two nearest exposures on the river. Rupert fall is over ledges of the dark green schists considerably broken and irregular. There are frequent outcrops of a similar rock below the fall and as far down as the north end of O'Sullivan lake, but in places it is of a lighter green, and in others more finely laminated. Pyrite, in small grains, is present in most exposures, and there is an abundance of quartz in dikes and irregular lenticular masses, in one of which ilmenite in small quantities was found. On the south shore of Abamisagi lake, gray granite is the only rock seen. It is rather fine-grained but contains broad pegmatite dikes. On the first portage below this lake there is a small knob of granite-gneiss and

Rock exposures.

between the second and third rapids there are exposures of a finely foliated micaceous schist dipping S. 60° E. <75°. The main body of the rock on O'Sullivan lake is of the same character as that described on the river. In going south, from the mouth of the river, along the west shore, there is a massive diorite which, in places, shows a gradation from fine-grained to coarsely crystalline. Farther east, in the deep bay, a gray quartz-diorite and epidote-granite are mixed with the schists. On a small island three miles south eastward from the mouth of the river, there is a band of sericite schist eight feet wide, striking N. 78° E. and vertical. Adjacent to this is a band, one wide foot, of ochreous powder containing masses of bluish quartz mixed with the sericite schist. The surrounding rock on this island is finely schistose and of a dark gray colour. All three of the hand specimens brought from these bands effervesce somewhat freely when touched with dilute hydrochloric acid. A similar band of sericite schist occurs on another island about a mile and a half farther north. There is an isolated exposure of pegmatite-gneiss on the west shore of the long north-east arm of the lake, but below this, on the opposite side, there are good outcrops of well-foliated schists. For some miles below the lake, following the Little Current river, which drains it, very fine mica-schists are common. From here onward—as far as we continued the survey—they are intimately mixed with granite and granite-gneiss. From observations made in 1903 it is known that the same rocks extend down the river till they are covered by those of the Cambro-silurian system.

Iron reported.

These mica-schists and gneisses are probably of the same age as the Grenville series, while the greenstones farther south belong to the Huronian age and in part correspond with what has been called Keewatin in the Lake of the Woods region. It has been reported that iron in small quantities has been found to the east of the Little Current river below O'Sullivan lake, and it is not improbable that careful prospecting in different parts of the Huronian area may reveal this and other minerals of economic importance.

Throughout the country examined, especially along the banks of rivers, there are areas of good clay soil, but on going away from the streams the drainage is poor, and spruce swamps are usually met with. These swamps, however, are not continuous, as there are low elevations, sometimes sandy, at short intervals.

Spruce.

Spruce of a size sufficiently large to make saw-logs is found along the streams and around the lakes wherever old forest growth exists, but, unfortunately, large tracts have been burned within the last fifty years

and on these the trees are too small to be of commercial value. Spruce large enough for pulpwood grows abundantly along the streams and often in the drier swamps. The growth of this tree seems to be much slower here than in more southern latitudes, and consequently the wood is firmer and more compact, consisting mostly of woody fibre, and therefore particularly well adapted for making pulp. In one tree, five and a half inches in diameter, I counted 135 rings, indicating that the tree is that number of years old.

Fish. Fish of various species are common in the lakes and rivers and form one of the chief sources of food for the Indians; speckled-trout abound in most of the rivers examined, especially in the Kawashkagama, Little Current, Wababimiga and Drowning. In the last named, fish, from one to four and a half or five pounds, were caught with both a fly and bait.

The larger animals seem to be rather scarce. Only two moose and as many caribou were seen during the summer and their tracks were by no means common. The Indians report that the smaller fur-bearing animals are fairly abundant.

Mr. W. H. Collins B.A., who accompanied me during the summer, performed his duties satisfactorily and assisted materially in carrying on the work.

Messrs. Joseph Miller of Heron Bay and Peter Godchère, Hudson's Bay Company's manager at Long Lake House, rendered me valuable assistance in securing canoemen and in various other ways.

Survey of the South and West Coast of James Bay.

By Mr. Owen O'Sullivan.

Introduction. In accordance with instructions to survey and explore the west coast of James bay, I left Missinaibi with my assistant Mr. W. Spreadborough on June 13th with two canoes and arrived at Moose Factory on June 27th.

Surveys. In 1898 Mr. Henry O'Sullivan made an accurate survey of the south shore of James bay as far west as Point Comfort, which, in a straight line, is forty miles north-east of the mouth of Moose river. West of Point Comfort, the shore line had been sketched in from track surveys whose absolute accuracy cannot be guaranteed, as it is impossible to follow close to the shore in canoes or boats, owing to the shallowness of the water.

I hired a small sail boat at Moose Factory to take us across to Point Comfort, but a strong north wind drove us to East point. I therefore sent the boat back to Moose Factory and started a micrometer survey from this point northward to Point Comfort.

Mesakonan point.

After completing this work, we returned to East point and continued the survey to Moose Factory and northward to Cape Henrietta Maria. We walked along most of the coast to enable us to follow the high water line, which was the best marked, but often we had to use the canoes on account of the difficult walking through mud and salt marshes. From Po'nt Comfort to Mesakonan point, a distance of six miles, the shore rises from four to twenty feet above high tide, and shoals are seen up to three-quarters of a mile out. Well-rounded gneiss, granite and argillaceous arkose boulders, averaging three feet in diameter, are piled ten feet above high tide at nearly all the points, and short sandy beaches surround the heads of the small bays. The land rises gently and is well-wooded with black spruce, tamarack and banksian pine of from five to nine inches in diameter.

Gull bay.

Gull bay extends from Mesakonan southward to Gull point, a distance of seven miles. This bay, which is about four miles across is very shallow, the tide running out for three miles. A swamp, called Cabbage Willows, extends eastward from the head of this bay across to Rupert bay ; there is a trail through it, some ten miles in length, which forms part of the winter route between Moose factory and Rupert house.

East point.

Between Gull point and East point, a distance of seven miles to the south-west, the coast is low with mud flats and boulders. Opposite East point, at about three quarters of a mile from high water line, is a reef of boulders which runs south for two miles and is then succeeded by sand and gravel bars as far as the Little Missisikabie river, a distance of six miles. This part can only be navigated with canoes at high tide. From the mouth of the Little Missisikabie to Nattabiska, twenty-seven miles, the shore is very flat and the distance between low and high water mark runs all the way from three to six miles. Hannah bay, at low tide, is simply a mud flat, with the exception of the Harricanaw river channel. From Nattabiska, which is considered the north-west limit of Hannah bay, to Moose factory, the distance is thirty miles.

Moose river.

The mouth of the Moose river it divided into three different channels : the centre one, passing south of Middleboro island, is reported to be the deepest, but last year the Revillon Bros. found a deep channel

from the "inner Ship hole," running north of Middleboro island, to within a few feet of the mainland on the north bank of the river opposite Moose island. Here they have established a trading post in opposition to the Hudson's Bay Co.

We have only to take into consideration the enormous flow of the Moose during spring freshets, when the ice, occupying 150 miles of a comparatively level, broad river, is suddenly disengaged, carried down with irresistible force and stranded for miles along the coast, to appreciate the fact that the delta at the mouth of this river is subject to remarkable annual changes.

Nomansland.

From the mouth of the Moose river northward, the shore continues low with mud flats and boulders as far as two miles beyond Pisquanish, which is thirty-one miles from Moose Factory. Then long reefs of boulders, sand and gravel bars extend seaward as far as Nomansland, sixty miles from Moose Factory. In this last stretch there are some points of land, made up of gravel and sand, that have an elevation of twenty feet above high tide. At Half Way point and Cockispenny one may land with canoes at any time.

Kinoje river.

Between Nomansland and the Albany river four small rivers enter the bay; the largest, named Kinoje, has a flow of about 8,000 cubic feet per minute. This river has not cut out any channel in the mud and can be reached with canoes at high tide only.

Albany river.

The tide between Nomansland and the Albany river runs out three miles. The Albany is the largest river entering James Bay on the west coast. It has several channels at its mouth, the deepest passing north of the island on which Fort Albany is situated. Fort Albany is ninety six miles from Moose Factory.

Ekwan point.

North of the Albany river the coast is very flat and the walking bad; we were compelled to use the canoes as far as Ekwan point, which is eighty fives mile north of Fort Albany. In this stretch, in which the difference between high and low tide is sometimes five miles, we could see nothing but mud, strewn with boulders. Between the Albany and the Ekwan, two large rivers enter the bay. The Kapiskau in Lat. 52° 45′ was surveyed by W. J Wilson in 1902, and, thirteen miles north of it, the Lowasky, a branch of the Attawapiskat, debouches. This river was surveyed by Dr. Bell in 1886. The Attawapiskat enters the bay through five separate channels; the third, north of Lawasky, is the deepest, and on it, six miles from the mouth, the Hudson's Bay Company has an outpost. There is also a Roman Catholic chapel.

Ekwan river. North of the Attawapiskat, the water continues shoal to the mouth of the Ekwan river and some distance beyond. Shoals are seen three and four miles from high water line all along. The Ekwan is 180 milles from Moose Factory and was surveyed by D. B. Dowling in 1901. Ekwan point, six miles north of the Ekwan river, is composed of coarse sand and gravel and has an elevation of fifteen feet above high tide. The water at this point is comparatively deep and there is only a distance of sixty feet between the high and low tide marks. Ordinary tides rise about seven feet.

Raft river. From Ekwan point to Raft river the distance is twenty nine miles ; the coast continues low with mudflats. Raft river had an approximate value of 10,000 cubic feet per minute when we crossed it, August 9. The water was then very low. It is navigable for canoes for about ninety miles to its source in two small lakes.

Lakitoosaki river. Forty five miles north of the Raft river, the Opinnagau enters the bay, and ten miles north is the mouth of the Lakitoosaki. These rivers have about the same volume, 20,000 cubic feet per minute, and are navigable for canoes for some considerable distance. The coast from the Raft to the Lakitoosaki becomes more sandy with fewer boulders, but the tide still runs out from one to two miles from high water mark.

Big Owl river. Sixteen miles north of the Lakitoosaki, the Big Owl river enters the bay ; it is two chains wide at low tide and had an average depth of three feet at the time we crossed it (Aug. 16). This river can be ascended with canoes for a short distance only.

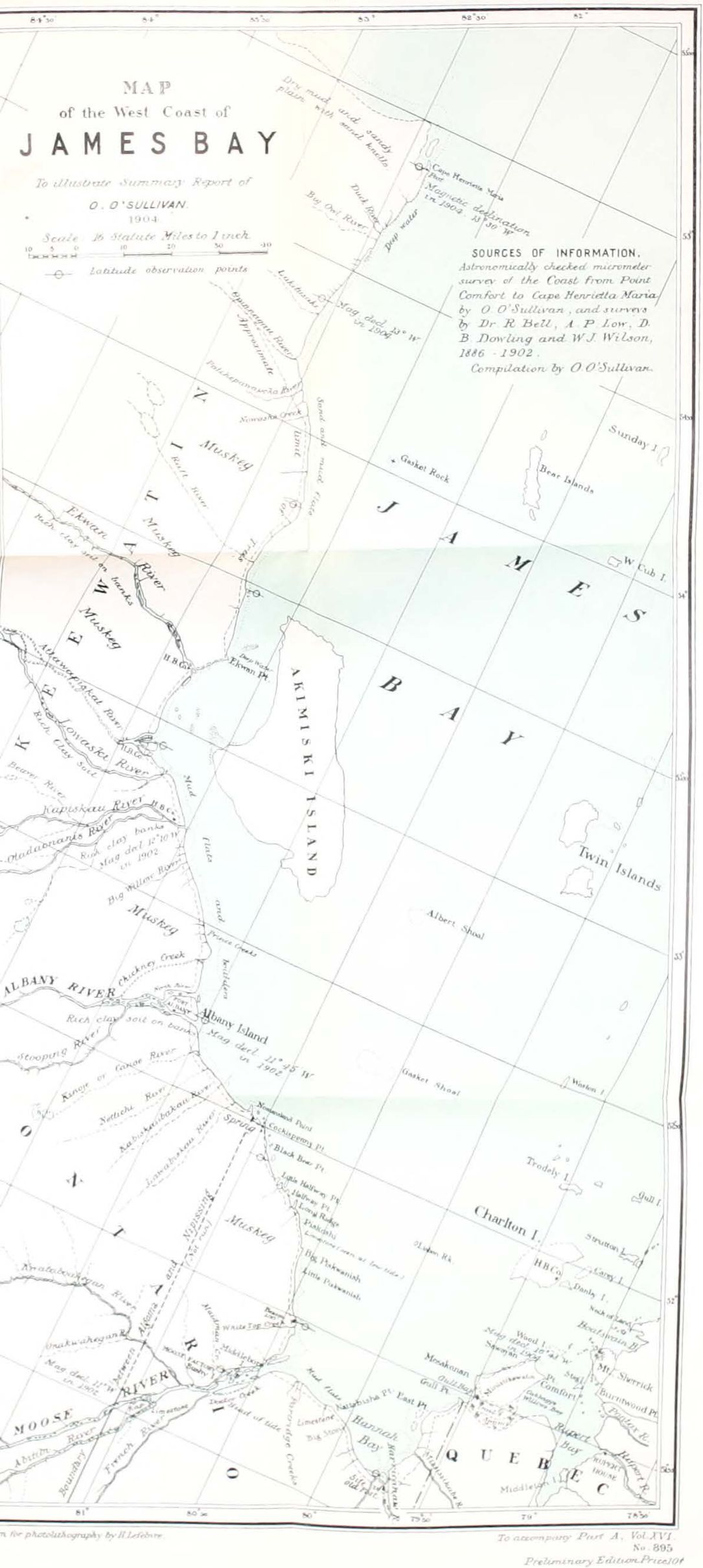
Smaller streams. Eight small streams enter the bay between Ekwan river and the Big Owl river. These streams become wider and shallower at their mouths, and their channels through the mud flats that appear at low water are so wide that we had to drag our canoes, drawing only fourteen inches, up one of the channels for two miles in order to reach the shore.

Termination of survey. The most easterly point of Cape Henrietta Maria is eighteen miles northward from the mouth of the Big Owl river and 300 miles from Moose Factory, following the sinuosities of the coast. This part of the coast is flanked by sand and gravel bars, some having an elevation of twenty feet above the tide mark, the water being deep right up to the shore. We terminated the survey at the east point of Cape Henrietta Maria in latitude 54° 51′ 30″ and we planted a post recording my name and the date, August 18. North-west from this point the shore is extremely flat and, when the tide was out, we could see nothing but mudflats strewn with numerous large boulders.

Geological Survey of Canada

ROBERT BELL, D.Sc., LL.D., M.D., LL.D., F.R.S., I.S.O., ACTING DIRECTOR.

1905



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Inland from high water mark we generally found a strip of low dry mud, in places a mile wide, and covered with grass, with occasional sand and gravel bars. To the rear of this, a fringe of alders and juniper-bushes of from ten to sixty chains wide, reaches the spruce swamps and muskeg areas which, I believe, is the character of the ground overlying the Devonian and Silurian formations extending for 150 miles west of the James bay coast.

In latitude 54° the spruce woods recede from the shore in a north-westerly direction and the coast continues north to the mouth of the Opinnegau river, then north-east to Cape Henrietta Maria. The country lying between the northern limit of trees and the cape is a barren, dry and gravel plain with sandy knolls and fresh water ponds.

Rock exposures.

Only two exposures of rock *in situ* occur on the west coast of James bay, one at High Rock point, latitude 51° 23′ which reaches one foot above high tide, and the other, at Pisquanish, is seen at low tide; both are fossiliferous Devonian limestone lying horizontally.

There is little doubt that the coast of James bay is rising slowly. Among the facts noted the following may be mentioned. In several places, well defined elevated beaches are distinctly traceable for several hundred feet back from the present high-tide mark. In some places the old cedar driftwood is discernable fully ten feet above the level of present high tide mark, and still above and beyond these appear other ranges of sand debris traceable through the densest part of the forest bordering the bay.

Game was very plentiful ; black ducks by the thousand breed in the southern part of Hannah bay, and the pintail and teal in even greater number, breed north of the Albany. A few ptarmigan were shot near Cape Henrietta Maria and, on our return, a large number of geese were also shot.

Speckled trout and whitefish, averaging three pounds in weight, are caught in nets at the mouths of all the rivers.

At Ekwan point, while having lunch, I counted over one hundred porpoises passing close to the shore. Seals were often seen, and numerous skeletons of walruses and seals were lying on the beach north of the Albany

Whales were not seen during the expedition, probably owing to the shallowness of the water all along the western coast of James bay ; but in 1898, as assistant with my father, we surveyed the east coast

from Rupert House to east Main Fort. There the water is deep and the bay is studded with many islands among which whales and porpoises were often seen playing.

The weather was most favourable. During the whole time, from June until September, we accomplished the work with two eighteen foot canoes and did not lose more than three or four days on account of bad weather.

Gardening is carried on successfully at Moose and Albany. We never had better potatoes than those from Albany. At Moose, cabbages, radishes, lettuce, pumpkins, cucumbers, carrots, turnips &c., grew luxuriantly.

Birds. My assistant, Mr. W. Spreadborough, made a large collection of plants during the season and prepared a list of the birds seen. The list of birds, with notes on their breeding habits, will be published in my complete report. Prof. Macoun has made the following summary report on the plants, and the full list will be included in "The Flora of the Hudson Bay" soon to be published by this Department.

Plants. "Mr. Spreadborough's collection of plants, numbering 278 species, includes all that were known to occur in the region examined, and many species not before recorded from that district. Though there appear to be none new to science, several species are of great interest or rarity. The more noteworthy of these are *Linum Lewisii* var. *stenophyllum* a white-flowered species of flax only known before from one locality, near Fort Severn; *Potentilla Egedii* which had until recently been confounded with *P. Anserina; Pyrethrum bipinnatum*, rediscovered on the coast of Hudson bay a few years ago; *Arnica foliosa*, a long way out of its usual range; *Gentiana Macounii*, known before in that region only from poor specimens collected at Rupert House, together with many species of willows, grasses and carices of rare occurrence.

"The flora as far north as Albany is in great part made up of species characteristic of the sub-arctic forest region, but from Raft river to Cape Henrietta Maria there is a considerable admixture of species more arctic in their character. No truly arctic species were collected, however. The collection is so complete that little, if anything, more remains to be done botanically along the coast between Moose Factory and Cape Henrietta Maria."

My thanks are due to the Hudson's Bay Co.'s officers whom I met in the course of my expedition, and I may mention in particular Mr. George McKenzie, Chief Officer in charge of the district.

I also wish to thank Rev. Mr. Holland and Mrs. Holland of Moose Factory, Mr. and Mrs. Christie of New Brunswick Post and the Rev. Fathers of the Albany Mission for pleasant hospitality.

Geology of the Country Around Bruce Mines.

By Messrs. E. D. Ingall and Theo. Denis.

Introductory.

During the summer, Messrs. E. D. Ingall and Theo. Denis were engaged in continuing the detailed geological investigation in the Bruce Mines district of Algoma, which they had commenced in 1902.

Mr. Ingall left for the field on 22nd of July and proceeded to Desbarats, where work was commenced. Mr. Denis left for the field on Aug. 5th. and joined Mr. Ingall at Desbarats, and together they continued the work until the end of October.

Mr. Geo. S. Scott of Toronto University a student in practical science, was attached to the party, and was of great assistance by reason of his energy and the keen interest he took in the work.

Considerable delay resulted from unfavourable weather, especially towards the end of the season, when the heavy rains made the lower lying lands very difficult to traverse.

Surveys.

In tracing out the various sedimentary and intrusive formations, the roads and coast line of the lakes, islands etc. having been surveyed, the intermediate areas were examined by means of lines paced along compass bearings through the bush. It was found that when corrected by tying on to fixed points at either end, this method was rapid and gave sufficiently correct results.

The road surveys were made with prismatic compass and micrometer, whilst the plane table and micrometer were used for the larger scale detailed work around the mines and for some parts of the coast line.

When starting this work in 1902, the topographical surveys had been completed and a preliminary geological examination had been made over an area comprising some 400 square miles.

As a result of that season's work, it became evident that to trace out the distribution of the intrusives and other members of the formation so as to make even a reasonably accurate, detailed map would take several seasons. It was decided, therefore, to select and complete a

smaller area which, whilst affording facilities for the examination, should at the same be typical of the geological conditions surrounding the economic mineral deposits of the district.

In this way a final map was made of a rectangle covering some seventy square miles, which included the Bruce and Wellington group of mines within its eastern extremity, and extended in a general W.N.W. direction for twelve miles in length by about six miles in width as far west as Killaly point, on the coast, and as the western end of Desbarats lake, inland.

Huronian series.

The area above outlined is underlain by rocks of the Huronian series as originally studied and described by Logan and Murray in the early days of the Geological Survey. The results of their work are to be found embodied in several reports and in a map on a scale of eight miles to the inch included in the atlas accompanying the "Geology of Canada, 1863." For the Huronian rocks, the succession given by Murray, is, in descending order, as follows:—

	Estimated Thickness.
l.—White quartzite chert and limestone	2,100
k.—Yellow chert and limestone	400
i.—White quartzite	2,970
h.—Red jasper conglomerate	2,150
g.—Red quartzite	2,300
f.—Upper slate conglomerate	3,000
e.—Limestone	300
d.—Lower slate conglomerate	1,280
c.—White quartzite	1,000
b.—Green chloritic schist	2,000
a.—Gray quartzite	500
Total	18,000

The above series is represented as lying on the Laurentian and as overlain by the Lower Silurian division of the Palæozoic.

In the areas of which the re-mapping has been completed by Messrs. Ingall and Denis, are found only those beds from (c to i) inclusive in the above column. As a result of the work done, the succession as thus worked out by Murray was confirmed, although it was found necessary to make considerable changes in the geological boundaries, delimiting the areas covered by the different sub-divisions.

Basic intrusives.

In addition to these sedimentaries, however, a number of extensive areas of basic intrusives form very prominent features in this district. As they have apparently considerable influence on the economic

deposits of the formation, their delimitation becomes of great importance.

Although Murray noted their existence, he seems to have assumed that they were practically all surface outflows, nor did he, apparently, attempt to follow them out or study their relationships, etc., in detail. In view, therefore, of the economic importance of these intrusives, it became necessary to undertake the tedious work of exploring for and of delimiting the areas occupied by them, studying also their relationships to the other rocks of the formation.

A number of extensive areas exist, which, until closer determination is made microscopically, may be called, generically, diabase. All those so far examined are uralitic.

The most extensive and important area of intrusive rocks is undoubtedly that within which are included the copper ore veins worked in the Bruce and Wellington mines.

Limit of intrusives.

By reference to the accompanying sketch plan it will be seen that this is roughly represented by a belt having an average width of about a mile and a half, and extending from a point about a mile and a half west of Bruce mines village, in a general easterly direction, continuously for about four and a half miles, where it passes off the sheet. Its outcropping is seen to gradually narrow down in passing eastward, for, whereas the width measured northerly from McKay island is nearly two miles, it narrows down, toward the eastern limit of the plan, to one mile, and about a mile still further east, the width exposed is but half a mile.

In its westward extension, this zone seems to terminate abruptly against the limestone belt as the latter swings round the curve of the anticlinal fold in the sedimentary series, and appears on the shore.

Although there appears to be, in this instance, a general conformity with the stratified rocks, the intruded material seems not to be absolutely confined to one horizon, but to have broken through into the upper beds at several places. The question thus remains open as to whether the intrusion extends in a more or less vertical attitude downwards through all the beds or whether, on the other hand, it constitutes a sheet of basic rock intruded between the sedimentary strata.

In the decided diabasic characteristics of the rocks, as far as present microscopic determinations go, and in the observed jointing resembling bedding, is found evidence in favour of the latter view.

On the other hand, the general appearance in the field, especially in regard to some of the other occurrences of similar diabase areas, leaves a strong impression that they represent masses often elongated in long dike-like forms intruded, almost vertically, through the generally flat-lying sedimentary series.

Limestone.

At one point along the northern boundary of the Bruce mines dia base area, an intrusive contact with the limestone is shown, and at a point about five hundred feet N. W. from No. 2 shaft of the Wellington mine, a ridge of limestone, showing a distinct strike about S. S. W. and a flat dip westward, is crossed, almost at right angles, by the diabase about a hundred feet to the south. The actual contact is however covered by soil. On the south side of this area, on the southern shore of Jacks island, is some further evidence of a similar nature. Here, at the water's edge, a salmon-coloured quartzite, apparently in the usual flat-lying attitude, abuts against the diabase mass of the island ; higher up, in a little bluff, small splinters of the same occur as inclusions.

Southerly limit of diabase.

Although, as above mentioned, the diabase intrusives and the limestone band abut at several places, low ground as a rule intervenes between the adjacent outcrops of the two rocks. Considerable exposures of the lower conglomerate are exhibited, as shown east of the Rock lake railway line, and also near the middle location road which runs north from the Portlock and Bruce Mines road at a point about a mile west of the latter place. On this evidence, the low ground alluded to has been assumed to be underlain by these same rocks. There is some slight evidence also of a similar arrangement of material where the limestone band skirts the shore of Lake Huron west of Bruce Mines harbour.

The southerly limit of the diabase area is marked by a range of high bluffs extending in an easterly direction from the bottom of Hay bay, for a distance of a mile or more and between this and the first rock outcroppings to the south. The latter are of a pale pink to white quartzite which would represent the lowest member in Murray's succession appearing in this district. The distance of about half a mile between the two rocks is occupied entirely by a wild hay meadow and swamp, so that the actual line of delimitation between the two can only be surmised.

Passing westward along the shore, no other extensive development of the intrusives is found until the Portlock area is reached. This exposure, as will be seen from the sketch map, has been

traced in a general east and west direction for a distance of some three and a half miles. The exposure has, for most of its length, a dike-like form and shows an average width of about a quarter of a mile. It outcrops on the line of the Canadian Pacific railway at a point about two miles east of Portlock station, and crossing the Portlock river near its mouth, continues westward parallelling the shore of the lake for a further distance of a mile and a half, ending at its western extremity in a bulbous termination. At about three quarters of a mile south-easterly from Desbarats village, the most northerly exposures are in the bluffs skirting the low flat of the valley of the Desbarats river, leaving the question open as to whether there is any connection between this area and the ridge of diabase commencing on the other side of the valley at the north end of the village. Similarly, at the end of this range, there is a break in the continuity of the exposures, due to intervening low ground, so that the connection between this range and that to the north of the Canadian Pacific railway is more or less problematical.

Diabase intrusives.

In the north-west corner of the map sheet are large areas of the diabase intrusives. On the western side of Desbarats lake there is a large development of igneous rock extending towards the north-west, beyond the railway, and bounded on the east by a narrow fringe of red quartzite whichforms the western shore of the lake and passes towards the north into the jasper conglomerate.

This area of diabase is very irregular in outline. It consists of a central mass about ninety chains east and west by sixty to seventy chains north and south, and from which radiate several arms or tongues. Two of the widest of these, having a south-easterly trend, were traced for two and three miles respectively, and proved to be very irregular in shape and outline.

The more easterly of these two tongues crosses the outlet of Desbarats lake, just above the dam built on lot 26 of the sub-division of Desbarats location, and extends to beyond the eastern boundary of the location. It disappears under the covering of drift of the valley of Portlock river, but it is quite possible that it extends further, as the quartzite formation, on which is situated the Cameron mine on the east side of the river, is cut by dikes of diabase, the same rock outcropping north of the shaft. This belt may further be connected with another large area of diabase which is situated on the south of Caribou lake, occupying a large part of the northern half of the Hinks mining location, and which is described later.

From an examination of a thin section from a dike in the vicinity of the Cameron mine, Mr. G. A. Young describes the rock as being "a much decomposed, fine-grained diabase with quartz which is probably secondary." From a thin section cut from another specimen, Mr. Denis describes it as a "medium-grained rock very much altered, but with visible diabasic structure." On each side of the belt, the rock is red quartzite, studded with an occasional pebble of jasper.

The other, or western tongue, which was traced out, follows a direction roughly parallel to the railway, and disappears near the northern part of the town site of Desbarats, under the alluvial covering of the Desbarats river valley; the belt crosses the Bruce and Sault Ste. Marie road about thirty-five chains east of the railway crossing.

Uralitic diabase.

A preliminary examination of this rock as a whole points to it being a uralitic diabase. Mr. G. A. Young, who examined a thin section from the main part of the area, describes it as "composed of abundant plagioclase laths (containing grains of calcite and epidote and penetrated by chlorite) idiomorphic towards a pale greenish, secondary-like hornblende. The rock has a diabasic structure, and the secondary hornblende is of the kind seen in the other sections, which contained augite."

There are probably other arms of various widths radiating from the central mass of igneous rock, and it is likely that the narrow belt on which are situated the workings known as the Richardson mine, on the east shore of Desbarats lake, is connected with it.

Igneous rock.

Another development of igneous rock occupies the greater part of the northern portion of the Hinks location and extends into the Keating location. It appears to measure over 150 chains east and west. On the south, the greenstone disappears in the low ground which lies between the railway and the road opened along concession VI of the Hinks location subdivision. The northern limit falls outside the boundary of the sheet of the area examined. The igneous rocks area probably extends north of Caribou lake, and the ridge on which are situated the workings on the Williams property (shaft said to be forty feet deep on quartz stringers containing copper) on the south half of lot 12, Con. II., Plummer township, is probably a part of it. The time available was too limited to allow of the definition of this development of diabase beyond the boundary assigned for mapping, and no thin section of the rock has yet been examined. As before mentioned, on account of intervening low ground, it cannot be positively proved that this area connects with the Portlock range of diabase, but it is regarded

as probable, and is accordingly so designated in the sketch plan. The diabase areas above described do not, of course, constitute the only exhibitions of igneous intrusions in this area; smaller dikes are of common occurrence, cutting the sedimentaries throughout this whole district.

THE SEDIMENTARY SERIES.

Sedimentary series.

The lowest member of the above series appearing on the map sheet, is that designated (c.) in the column given on a previous page. It consists of a white or very pale pink quartzite frequently containing thin layers of small pebbles of white translucent quartz or dark gray-brown jasper, the former decidedly preponderating.

Of the rocks designated "lower slate conglomerate" (d) there is but a slight development in this district, their place being mostly occupied by the Bruce Mines diabase intrusion. In fact, for this vicinity, the term "slate conglomerate" seems to be rather a misnomer, as, whilst the beds carry pebbles as elsewhere, they often present a quartzitic appearance. East of the road from the village to the station of Bruce Mines, a pale pink quartzite shows along the north side of the lower Thessalon road. This contains layers of boulders and pebbles, and is overlain by a thin layer of very dark-coloured quartzite in which the pebbles are numerous. This is specially noticeable immediately east of the Station road and, with a flat dip, the quartzite passes under the limestone belt that outcrops a short distance to the north of it.

Limestone belt.

The limestone belt (e) is apt to be variable in composition and at places charged with argillaceous, siliceous and other impurities. On exposed surfaces the more impure bands are accentuated by the process of weathering, and the strike, as well as the folds and twists, etc., in the beds, are thus made plain.

By reference to the sketch map, it will be seen that the next two members of the series occupy the greater part of the area mapped.

Upper slate conglomerate.

The "Upper slate conglomerate" (f) constitutes the coast line for over five miles easterly from Portlock harbour; it forms most of the smaller islands and rocks between this point and Killaly point, as well as the northern shore of Campement d'Ours island, all of Portlock island and the eastern portion of Dawson island.

Slaty rocks and a general slaty appearance are the marked features of this horizon, although quartzitic developments are by no means uncommon. No particular slaty cleavage is present. The pebbles, which are a characteristic feature, are very unevenly distributed, and

are as apt to be scattered through the rock as to lie in definite layers. On some of the islands, however, and at other places, solid beds of pebbles are seen, whilst over large areas, only the slaty rock is to be found practically free from these inclusions. In both the upper and lower conglomerates the pebbles vary much in size, ranging from those a foot or over in diameter down to the size of small marbles. They are of varying composition, but all are apparently derived from the underlying formation. The materials most frequently represented in the pebbles are granitite, gneiss, quartzite and jasper.

Red quartzite.

The next higher horizon consisting of the red quartzite (g) covers also a large part of the area mapped. It comprises a series of quartzite beds of various shades of red. It constitutes the coast rocks from the Portlock river, westerly, to the limits of the map ; a few of the islands close to the shore are also of this rock. Pebbly portions are not unfrequent, but do not form a prominent feature.

Jasper conglomerate.

Towards the most westerly portion of the area studied, still higher beds of the series are encountered. These probably represent the red jasper conglomerate (h) of Murray. The main distinction between these quartzitic rocks and those last mentioned, is to be found in the much greater profusion of the pebbles of quartz and jasper of red and other tints. The finer quartzitic ground mass of the rock being white, also serves to distinguish it, although the distinction between the various siliceous members of the series rests rather on such general features as the colours and proportion of pebbles than on anything else, and no sharp delimiting lines can be expected.

The general attitude of the sedimentaries is as represented on Murray's map, viz. that of a flat anticlinal whose easterly and westerly axis pitches towards the west. This structure is made plain from the swing of the outcropping of the limestone bed near Bruce Mines and, in passing westerly, the upper beds seem to follow in average conformity to this trend. Locally, there are of course variations from the average strike and dip and many secondary folds. Nowhere are the angles of dip very steep, the higher measuring from 30° to 40°, whilst over large areas, the dip would possibly average about 15° or under. In fact, along the coast and throughout the islands westerly from Portlock harbour, the beds seem to lie in a series of gentle undulations, so that islets and reefs of turtle-back shape are common.

Economic minerals.

The minerals of economic interest in the district are the sulphuret ores of copper* and the hematite ores of iron.

* For results of recent assays of these ores see Appendix at end of report.

Geological Survey of Canada

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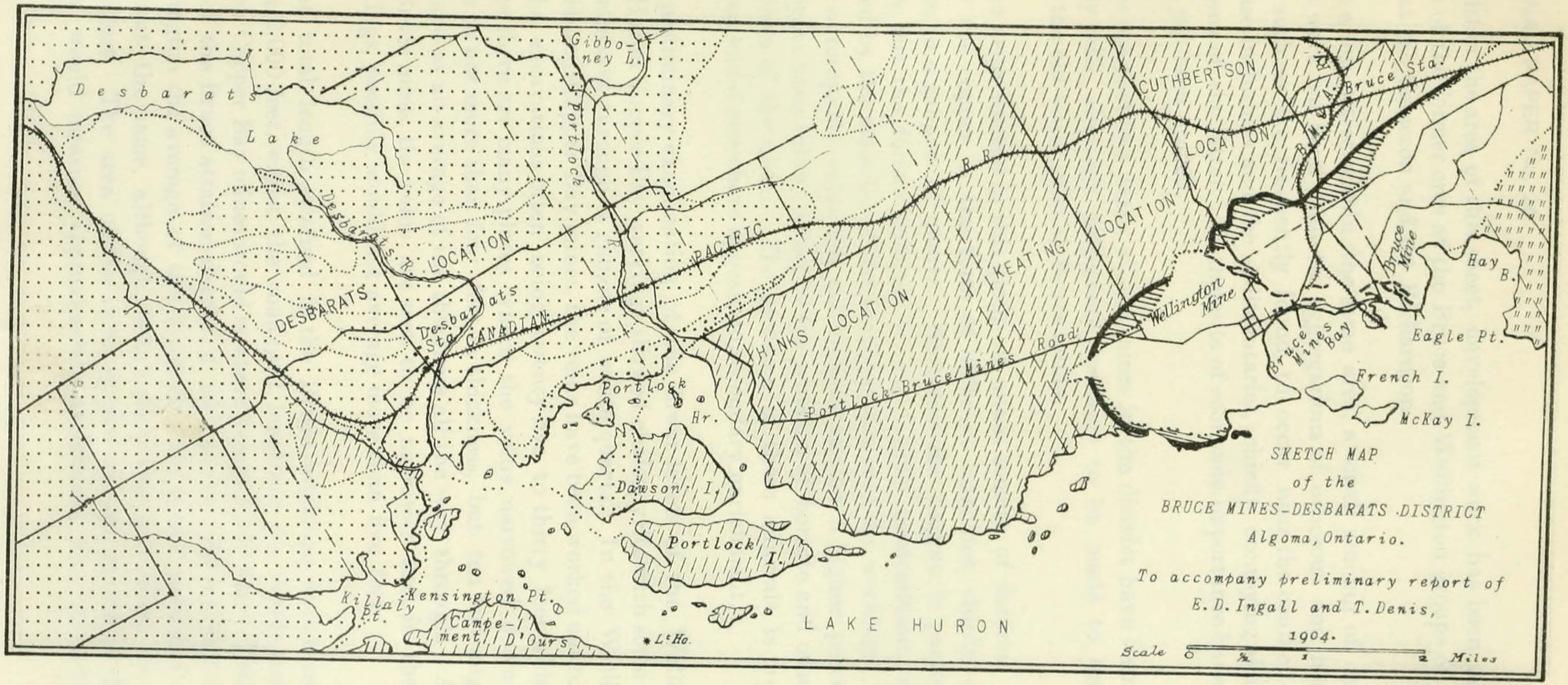
1905



To accompany Part A, Vol. XVI
No. 898

Lower Quartzite

Lower Conglom.te

Limestone

Upper Conglom.te

Quartzite series

Diabase

Within the area of this sheet, development work has been done on veins of the former ores at the Bruce and Wellington groups of mines and at the Cameron and the Richardson. Copper.

At a few places within the same area, a small amount of development work has been done on aggregations of ochreous and hematite ores such as are frequently found to occur near the contact of the diabase inclusions and the sedimentaries, chiefly occupying shattered portions of the latter. No deposits of economic importance have, however, yet been proved.

For the past two years, all the mines in the district have been practically idle, although shipments continue to be made to Sudbury from the old waste piles at Bruce mines.

The veins worked in this group of mines consist of fissures. They carry the copper in the form of different sulphides, chiefly chalcopyrite, in a gangue of quartz. At places the gangue is partly dolomitic, but the former mineral is very largely predominant, as evidenced by the material of the waste piles around the workings. Near their outcrops the veins are said to have carried a higher percentage of copper than below, owing to the presence of bornite and other rich sulphides of the metal. The presence of these minerals is probably due, as would elsewhere appear, to secondary enrichment.

A preliminary examination of the lower levels of the Wellington and Huron Copper Bay workings showed chalcopyrite with some pyrite disseminated through a gangue of white quartz. In the Wellington and Huron Copper Bay mines, the veins have been worked out to great widths, excavations often being twenty-five to thirty feet wide. Of course there are many places where the veins narrowed down sometimes to not more than four feet in thickness, but ten feet might be accepted as an average of the thickness all the way through. At the old Bruce mine, the veins are seen to be narrower and, in the main workings, possibly would not average more than five feet. Wellington and Huron Copper Bay mines.

The total length attained in the Bruce workings would measure about 2,000 feet, whilst the combined length of the Wellington and Huron Copper Bay mines would measure nearly 2,500 feet. The workings of the Bruce attained depths of 250 to over 300 feet and at the Wellington the average of the depth attained in the workings would be about the same, although Bray's shaft was put down to about 1,060 feet. The area of the veins stoped out, as shown on the old plans, would measure approximately as follows, viz.: At the Bruce

mine about 225,000 square feet, which, assuming a depth of 300 feet for the mine, would represent a length of, say, 750 feet of vein excavated. At the Wellington, a total measurement is shown of about 600,000 square feet, which would represent an assumed average depth of 300 feet, an equivalent in length of 2,000 feet. In both cases, it must be borne in mind that in these dimensions the two mines represent workings on two main veins close together and parallel to each other. In the Wellington mines, the veins were known as the New Lode and Fire Lode. They parallel each other for about 1,300 feet but join together to form a single vein at the east and western ends of the workings.

Bruce workings, west.

The westerly part of the Bruce workings is situated on the main lode and its branches for about 1,300 feet, whilst east of this, for about 600 feet, the chief excavations are on two veins known as the Trial and Dodge. A good deal of prospecting work was done on the minor veins and branches in the vicinity of these two chief mines, and also on veins which outcrop in the 4,000 feet of distance intervening between the Bruce and Wellington workings, but much more development will have to be done before the question as to the practical continuity of the series of fissures and their profitable nature can be settled. An excavation called Taylor's shaft, from which it was said some test drifts were run, was sunk at a spot about midway between the two mines, but no details are available as to the results attained.

West Canada Copper Co.

The particulars given above refer to the work done, during the first period of the history of these mines, by the West Canada Copper Company and its predecessors. This period ended with the cessation of work in 1876. When this company was working at its strongest, it employed as many as 380 men, and for the period of years from 1858 to 1875, produced about 37,378 long tons of concentrates, having a total content of nearly 7,500 long tons of copper, valued at over $2,000,000. The average price received for the copper during that whole period of eight years would thus be somewhat over seventeen cents per pound. Since 1858, however, the price of this metal has fallen considerably. In that year the company obtained an average of twenty-one cents per pound for its copper, whereas the figures for 1875 show an average value of less than sixteen cents per pound. When the present company bought the mines, a few years ago, some further work was done, of which, however, we have as yet no complete data. At present nothing is being done other than to keep the plant and workings in order. In connection with the operations of the present company, the mines have been fully re-equipped with modern machinery for mining and ore dressing, the mill having a capacity of 400

tons per day. There were current rumours last year that the mines had been acquired by the International Nickel Co., but these seem to have been without foundation. As it is intended to give full particulars of this important group of mines in the complete report to follow later, nothing further need be stated here.

Causes of failure.

The final failure of the first attempt to work these mines seems to have been due to a variety of causes, many of which have ceased to be operative with the progress of opening up of the district, and it becomes a question whether successful work can not again be carried on with careful management and the improved plant and methods available.

Cameron mine.

About two and a half miles north-east from Desbarats station on the Canadian Pacific railway (Algoma branch) is the mine known as the Cameron or Stobie. At this place a fissure vein is seen cutting a ridge of red quartzite. On this vein a shaft has been sunk some 150 feet in depth, from which, at the 100 feet level, have been run drifts east and west totalling in length about 150 feet. To the east of the shaft the vein does not outcrop, but west, for a distance of 150 feet, it has been stripped; from that point it runs under the deep soil of the adjacent farming land of the valley. On the rocky ridges opposite the mine, 1,700 feet further west, small surface workings have also shown the existence of ore. These are roughly on the strike of the Cameron mine vein, but whether they are to be taken as representing its actual extension is doubtful. The outcroppings near the shaft show a composite vein of about four feet in width, the ore being chalcopyrite in a gangue of white quartz. Some specimens show, plainly, surface change of the chalcop yriteto bornite. The vein in the workings shows a dip of 75° to the south and a width at places of about twelve feet, made up of subordinate branches with 'horses' of quartzite.

Richardson mine.

The workings known as the Richardson mine are situated about two miles and a half north of Desbarats village near the south-east end of Desbarats lake. These consist of a small prospecting shaft and a number of shallow pits and trenchs extending over a distance of about three-quarters of a mile along the strike of a series of greenstone dikes which cut the jasper conglomerate of the sedimentary series. The evidence of the intrusive nature of the greenstone is here very marked, long narrow strips and lenses of the jasper conglomerate being included in the igneous mass. Some of the mining work done here is altogether in the greenstone, as in the case of the before-mentioned shaft. Here, as so frequently observable elsewhere in the district, the rock is much decomposed: the resulting ochreous material has stained it, giving a

very ferruginous appearance, whilst in the jointing etc., it has at times consolidated to form fairly good hematite ore."

On Corundum in Ontario and on Surveys near Lake Temagami.

By Dr. A. E. Barlow.

Introduction

Dr. A. E. Barlow was engaged during the winter of 1903-4 in compiling a report on 'The Nickel and Copper Deposits of Sudbury, Ontario.' The finished manuscript was sent to the King's Printer on July 4. At the time of writing, a few copies of the complete report have been received, and it is confidently expected that the whole edition will be ready for distribution in a very short time.

In this work, it has been the author's aim not only to embody the results of his own personal examinations and investigations, but also to bring together all the valuable and reliable information necessary for a true understanding and appreciation of the origin, geological association, extent and economic development of these immense ore bodies. This information is comprised in a volume containing 236 pages of text, illustrated by twenty-nine plates and five maps. Considerable progress was made in an investigation regarding the origin and composition of corundum, the basis of study consisting of specimens of this mineral and associated rocks from the now world-famous deposits of Central Ontario. Descriptions of occurrences of corundum elsewhere throughout the world have been closely consulted for purposes of comparison, attention being especially directed to the corundum deposits of India, Russia and the United States. These three countries possess areas of corundiferous rocks capable of economic development, although, so far as is known at present, none of these deposits are likely to become serious rivals of the Canadian mines. A report on 'The Occurrence of Corundum in Canada' is in progress and, as in the case of the report on nickel and copper, special care has been devoted to the economics of this mineral. This report awaits the completion of certain necessary chemical analyses (undertaken by Mr. M. F. Connor of this department) which are being conducted on material illustrative, not only of the different varieties of corundum, but also of the several somewhat peculiar and unusual types of rocks with which this mineral is invariably associated.

Occurrences of corundum.

Robillard mountain.

Occurrences of corundum in Canana are now known to be confined to a series of eruptive rocks frequently presenting a well-marked foliation in very close accordance, as a general rule, with that of the

surrounding granites and diorites (Laurentian gneisses). Outcrops of these rocks on Robillard mountain at Craigmont are regarded as belonging to an intrusive complex, the products during crystallization of a highly alkaline and aluminous magma. The resultant rock-types present several varieties of nepheline-syenite and a red feldspar rock which is the prevailing corundum-syenite or syenite-pegmatite. Most of the syenite-pegmatite is altogether free from quartz, though occasional exposures contain a very small proportion, thus showing a distinct approach to ordinary granite-pegmatite. Although all of these rocks are regarded as the product of one distinct period of plutonic activity, they are themselves somewhat different in age. Thus, the nepheline-syenite is older than the ordinary red or corundum-syenite, the syenite-pegmatite following, while certain quartz-pegmatites closed the period of volcanism. In age, these rocks doubtless belong to the Archæan, although they are intrusive into ordinary granite and diorite gneisses usually classified as Laurentian, as well as into the crystalline limestones and sedimentary gneisses of the Grenville series. Indeed, the calcite, which was at one time thought to be an original constituent, is now known to be derived from the crystalline limestone whose association with the nepheline-syenites is so general.

Character of corundum bearing rocks

The corundiferous rocks are of syenitic or gabbroic type and appearance, the feldspathic constituent varying from microperthite, through albite, oligoclase and andesine to bytownite. Scapolite and nepheline often accompany or replace the prevailing feldspars.

The dark greenish bands or portions of the ordinary red corundum-syenite at Craigmont are made up almost entirely of scapolite, with a much smaller quantity of titaniferous magnetite and occasional individuals of corundum. These rocks are, as a rule, very poor in coloured or ferro-magnesian constituents, which may be either biotite or hornblende, or both. The prevailing absence or scarcity of quartz or free silica is especially noteworthy, although, in the corundum-syenite-pegmatite from Craigmont, quartz has very occasionally been noticed in the same hand-specimens with crystals of corundum. The rarer or accessory minerals include calcite, muscovite, apatite, garnet, magnetite (always titaniferous), sodalite, zircon, gahnite or zinc-spinel, graphite, molybdenite, chrysoberyl, pyrite, chalcopyrite, pyrrhotite, galena, eucolite and eudialite.

Scapolite rock.

The frequent occurrence, and, at times the abundance, of corundum in the nepheline-syenites of Ontario are, so far as is known, unique, for, although similar rocks occur as differentiated forms of the corundum-syenites in India and Russia, no corundum has yet been found

Corundum in nepheline-syenites.

immediately associated with them. It is confidently expected, however, by those who have studied the Canadian occurrences, that more careful prospecting and examination will result in the finding of corundum in the nepheline-syenites of both countries. In this connection, it is worthy of remark that at Craigmont small crystals of corundum, amounting to perhaps half per cent of the whole rock mass, have been found in a rock composed of about 63 per cent of nepheline and 30 per cent of plagioclase (an acid oligoclase). The remaining 6·5 per cent is made up of muscovite, calcite, biotite and titaniferous magnetite. Another closely related form, occurring at the same locality, with 4·5 per cent of corundum, contains 70 per cent of oligoclase, 12 per cent of nepheline, 10 per cent of muscovite, other minor constituents being calcite, biotite and titaniferous magnetite.

Origin of corundum.

The simplicity and, at the same time, completeness of the Canadian occurrences of corundum, combined with the fresh and unaltered character of the associated minerals, at once removed all doubt as to the pyrogenetic origin of this mineral, showing clearly its development as a primary constituent from a highly aluminous silicate magma, as one of the first products of its crystallization. The chemical analyses so far completed give remarkable emphasis to the fact that these natural occurrences conform very closely to the law formulated by Morozewicz from his observations of the behaviour of the cooling of magmas artificially produced. This law, in brief, recites that 'the development of corundum in any pure alumino-silicate magma is dependent on the ratio of the alumina to the sum of the other bases.' With the knowledge of this fact, therefore, we can predict with the utmost confidence the saturation point for alumina for any such magma. Corundum, consequently, although an accidental or accessory mineral in these syenitic and gabbroic rocks is, nevertheless, frequently so abundant as to characterize the containing rock. For example, the specimen of the ordinary red corundum-syenite-pegmatite, chosen for analysis as representative of this rock occurring at Craigmont, contained 34·14 per cent, and the corundum-bearing rock from Dungannon township showed the presence of 13·46 per cent of this mineral. The results of concentrating operations on a large scale at the Craigmont mill, covering a period of two years, showed a saving 10·6 per cent of corundum.

Percentage of corundum.

Increasing use of corundum.

The increasing demand for corundum is due, not only to the improved methods of cleaning corundum, but also to the wider application of the material thus obtained. Its manifest superiority as an abrasive to the ordinary impure products sold as emery is being gen-

erally recognized. The decrease in price which is sure to come in the near future will drive emery and the other cheaper abrasives out of the market. It is confidently believed that the Canadian occurrences stand unrivalled, not only in regard to the great area covered by the corundum-bearing rocks, but also in regard to the comparative richness of the individual deposits as well as in the pure and unaltered character of the material secured.

It is particularly worthy of note that Canada is now the largest producer of corundum in the world, and the future of this comparatively new Canadian industry is very bright indeed, provided undue competition and over production can be avoided.

Production of corundum.

The various grades of crystal corundum hitherto produced have obtained an enviable reputation for purity and uniformity not only in this country but throughout the world. An idea of the rapid growth of the industry may be gathered from the fact that in 1900, the first year of its establishment, only three tons of concentrates were produced, valued at $300, while in 1903, the total output amounted to 1,119 tons valued at $87,600, of which 849 tons was grain-corundum, the remainder being rough-cobbed ore.

On May 1, 1904, Dr. G. A. Young, a graduate of McGill and Yale universities, was appointed as assistant petrographer to succeed Mr. O. E. Leroy, who had resigned this position to become geologist to the Imperial Chinese Mines Prospecting Administration.

From June 6 to 10, Dr. Barlow was visiting the mines and smelters in the vicinity of Sudbury for the purpose of securing additional information in regard to the nickel and copper industry. Many photographs were obtained illustrative for the most part of the modern smelting appliances recently installed by the Canadian Copper Company at Copper Cliff.

Work near lake Tamagami.

Dr. Barlow's intructions for the summer's work called for a continuance of the detailed geological exploration of the area in the vicinity of the Northeast Arm of lake Temagami, but, owing to his official engagements elsewhere, he was unable to give that large share of his time and attention to field work in this area as was at first contemplated. This work, which was begun in the summer of 1903*, was intended to trace with more accuracy and in greater detail than before, the geological associations of the jaspilite iron ranges occurring between the Northeast Arm and the Ko-Ko-Ko lake. Acting under instruc-

* Summ. Rep. Geol. Surv. 1903, pp. 120-133.

tions received from Dr. Barlow, Dr. Young, whose report is appended, left Ottawa for the Temagami district to examine the country lying to the east and south-east of Lake Temagami. He was assisted by Messrs. W. Herridge, of Ottawa, and M. E. Wilson, of Paris, Ontario, and speaks in terms of commendation of the performance of their duties. A few days were spent (July 26 to 31) by Dr. Barlow in company with Dr. Young and Professor W. G. Miller, provincial geologist, in a special examination of certain portions of the iron formation.

American mining congress.

The hon. the Minister of the Interior having decided that Canada should be represented at the annual meeting of the American Mining Congress to be held at Portland, Oregon, from August 22 to 27, Dr. Eugene Häanel, Superintendent of Mines, and Dr. Barlow were selected by him as the official delegates. In company with Dr. Häanel, Dr. Barlow left Ottawa for Portland on August 15. A report concurred in by both representatives has already been presented to the Minister of the Interior; it contains all such information on mining or geological matters presented or discussed by the delegates at this session of the Congress that may either directly or indirectly affect Canadian interests..

While in the West, the opportunity was embraced of examining some of the more salient features in connection with the geological associations of the Rossland ore deposits for purposes of comparison with those of Sudbury. During the few days that were allotted (Sept. 1 to 7) to this district, short visits were paid to the smelters at Grand Forks and Nelson.

Dr. Barlow returned from the West on Sept. 14, and left for Temagami on Sept. 18, where a month was spent in securing the necessary geological and topographical details in the area between the North and Northeast arms of Lake Temagami. The Ko-Ko-Ko jaspilite or iron formation was outlined with great care.

Surveys.

A re-survey was made of Ko-Ko-Ko lake which has been plotted on a scale of 40 chains to an inch, while similar surveys were made of a large number of smaller lakes, including Business, Charlie, Pine View and other lakes to the east of Ko-Ko-Ko lake. These will enable the geological boundaries to be shown in much greater detail than on the geological map previously issued.

On Surveys between Rabbit and Temagami Lakes.

By Dr. G. A. Young.

Commencing at Long lake, on the line of the Timiskaming and Northern Ontario Railway, geological boundaries were traced within, and surveys made of, the area bounded by Lake Temagami and its Northeast Arm, the portage route to White Bear lake, White Bear lake itself, Rabbit lake and the southern boundary of map-sheet No. 138, or about latitude 46° 55′ N. Field work was continued until October 29, when the weather became very unsettled.

The country included within the above area is comparatively level, though abrupt ridges, seldom rising above three hundred feet, are characteristic of these sections, underlain by a formation of slate and conglomerate. Elsewhere, as a rule, the hills and ridges are much lower and rounded. The area is densely wooded and contains a large number of lakes, most of which drain into Temagami or Rabbit lake.

Geological succession.

The geological succession is similar to that of the area to the north of the Northeast Arm, but jaspery-iron-ore bands do not occur. The oldest series of rocks consists chiefly of schists, which, in one area, are mainly chloritic and sericitic, while, in a second area, hornblende and mica schists predominate. These schists are penetrated by masses of granite of at least two varieties, one of which is also cut by a body of syenite. The schists and intrusive masses of granite and syenite are, in places, unconformably overlain by a heavy conglomerate, which almost invariably grades up into a slate, and the latter, in one instance, is conformably overlain by a bed of quartzite. The beds of slate and conglomerate, as a whole, occur horizontally, and are frequently capped by sills of diabase. The diabase is also found resting on the schists and granites. Diabase dikes intersect the schists, the granites and the overlying conglomerate and slate formation ; their relation to the sheets of diabase was not observed.

Areas of schists.

The schists form two large areas in which they, or the rocks from which they presumably are derived, are alone present, while in two other areas schists are present with what are probably more highly metamorphosed forms and with intermingled masses of granite. Schistose rocks occupy nearly the whole of the point between the Northeast Arm and Muddy Water bay on Lake Temagami, and continue in a band of varying width to the head of the Northeast Arm,

where they extend southward nearly to the head of South Tetapaga river. This band, seldom above one-half mile in width, is bounded on the south-east by an intrusive granite, while on the east and north-east it passes under the overlying conglomerate. The boundary between the schists and the granite is not a definite one ; on the contrary, as the granite is approached, masses of it, usually of a finer-grained variety, are found within the schists, the granite body appearing as a batholite underlying the schists. The rocks of this area are mainly gray to dark green or greenish black, dense sericite and chlorite schists, frequently having a very pronounced slate-like parting, and they appear to have been formed from the shearing of quartz porphyries and more basic eruptives, which, at times, still preserve much of their original character. These schists frequently contain disseminated sulphides, which, along certain lines or bands, are sufficiently abundant to cause the rock to become rusty from weathering.

A second area of schistose rocks stretches from Long lake westward to Lizard lake. The southern boundary of these rocks is formed mainly by an intrusive granite, while on the other sides, as a rule, the schists are overlain by the conglomerate and slate formation or by sheets of diabase. Within this second area the rocks are usually very dark in colour and are mainly fine-grained mica and hornblende schists with masses of fine-grained to dense diabase-like rocks. The schists are frequently banded, and the strike near the contact is commonly parallel with the direction of the usually sharp line of contact of the intrusive granites.

The remaining two areas of schistose rocks are situated, one along the north side of Wa-sac-si-na-gama lake, and the other in the area between that lake and Ingall lake. Both of these areas are difficult to define, consisting, as they do, of intermingled masses and bands of dark hornblende and mica schists surrounded or penetrated by granite. Coarser-grained gneissoid hornblendic rocks are common within these areas and appear to represent highly metamorphosed forms of the schists or basic modifications of the granite, due to the absorption of the schists.

Granite varieties.

Two varieties of granite are found, which will be referred to as the gray and pink types. The gray type is by far the more abundant and occurs in two main areas ; one of these is found on both sides of the northern extension of Wa-sac-si-na-gama, and reaches further north across the South Tetapaga river ; the other is found about Ingall lake, extends north to Lizard lake, eastward to Rabbit lake, and southward to the southern limits of the section. This granite is commonly of a

grayish colour, coarse-grained, and, as a rule, is rather rich in coloured bisilicates. The feldspars are usually conspicuously large and tabular, and when hornblende is the chief coloured constituent, the latter mineral is often present in large prismatic individuals. Frequently, however, biotite is the principal coloured bisilicate ; at other times it may be present with hornblende in about equal proportions. In the eastern area, the mineral constituents are sometimes seen to be rudely parallel, and, proceeding southward, towards the borders of the district, this tendency to parallelism becomes more prominent, the granite appearing to pass into a gneissic type. The granite of the eastern area is less uniform than the western representative, contains masses, more basic in composition, and is much cut by pegmatite dikes. At one point along the south shores of Wilson lake occurs the second type of granite, the pink variety. It is of medium grain and rather poor in coloured constituents ; it underlies the conglomerate. A similar granite is also found on the shores of Lizard lake cutting the gray variety.

Hornblende-syenite.

On both sides of the eastern arm of Wa-sac-si-na-gama and on the north side of Brophy lake occur areas of pink hornblende-syenite. These areas and several others to the south of Brophy lake are separated from one another by a flow of diabase, but it appears that they are all part of one mass, undoubtedly intrusive into the gray type of granite. This syenite is of medium to coarse grain and is composed principally of broad tabular feldspar individuals. On the south side of Brophy lake, the syenite appears to grade into a fine-grained red granite, poor in coloured constituents.

Slate and conglomerate.

Three main areas of the slate and conglomerate formation are present, besides small isolated areas, sometimes measured in yards, at other times a quarter of a mile in diameter. One large area of these rocks occurs between Wa-sac-si-na-gama and Muddy Water bay and extends southward to Cross lake and Cross bay. Another large area extends from Ingall lake up to Lizard lake, while a third stretches from the head of the Northeast Arm to the southern end of Rabbit lake ; this latter area is, however, separated into two portions by a sheet of diabase in the neighbourhood of Twin lake. The conglomerate, which is always found wherever the base of the formation is exposed, consists of a dark fine-grained base holding pebbles and boulders of granites, gneisses, schists, etc. The number of different kinds of rocks forming these pebbles and boulders is very large, and sometimes varieties are found which cannot with certainty be correlated with any of the types occurring within the district. But in general, a distinct preponderance of boulders or pebbles of the adjacent underlying rocks is found. On

some glaciated exposures the granite appears to hold masses and strings of the conglomerate, but the presence within the conglomerate of rounded pebbles composed of what, macroscopically, seems to be the same granite, and the entire absence of metamorphism in the conglomerate, and of endomorphism in the granite, negatives this conclusion.

Wherever any considerable section of these sedimentary rocks is found, the conglomerate passes upwards into a slate by the gradual decrease in amount and size of the pebbles and boulders. Over large areas, however, the upper beds cannot be said to be true slates, since pebbles are of very common occurrence. The slates are dark coloured like the conglomerate, and like it, too, often lack distinct evidence of the original bedding planes. The formation, as a whole, occurs in a horizontal position, but the strike and dip are constantly varying. Sometimes the beds are sharply folded or plicated, but more generally they lie in low domes. At one locality, on Lizard lake, these small dome-like folds have preserved a small area of quartzite, an upper formation very common to the north.

Diabase.

Areas of diabase occur throughout the district, and it appears tolerably certain that all of these are part of a once continuous sill. The rock is often very coarse-grained, becoming finer as the contact is approached and always dense at the immediate junction. The diabase is frequently found capping the slate, and the line of contact is seen to follow the folds of the slate formation. At one locality a sheet-like area of diabase passes gradually into a dike-like mass dipping under the granite; the diabase is also found dipping on all sides under hills of granite and syenite.

The Geology of a District from Lake Timiskaming Northward.

By Dr. Wm. A. Parks.

Introduction.

Pursuant to arrangements made with the director, I left Toronto on June 1, 1904, with instructions to examine as closely as possible the geological conditions of occurrence and general extent of the deposits of ores of silver, nickel and cobalt discovered along the right of way of the Timiskaming and Northern Ontario railway. As these deposits are situated within five miles of the village of Haileybury on Lake Timiskaming, the most convenient means of access, prior to the completion of the railway, was via Mattawa by rail to Timiskaming and steamer to Haileybury.

The second day of June was spent in Mattawa in securing men and supplies, and on the following day I was joined by Mr. H. L. Kerr, B.A., who had been appointed my assistant for the summer. The party immediately proceeded to Haileybury, and on June 6 we were enabled to begin work at the mines. About two weeks were spent here in work which will be described below, after which our headquarters were moved to Tomstown, on the Blanche river, and the rest of the summer was devoted to the exploration of the country from that centre. The cause for this alteration of the plans for the summer lay in the fact that the Bureau of Mines of Ontario had already despatched Professor Miller, the provincial geologist, to carry on the same investigations which I had been instructed to undertake. Realizing the lack of economy in duplicating the work, it was proposed to divide the field between Professor Miller and myself; the director was pleased to acquiesce in this arrangement and, in consequence, directed me to examine the country northward to the height-of-land, paying particular attention to the extent of the silver-bearing series, but not neglecting the features usually dealt with in a general geological report.

Surveys.

It was in pursuance of this arrangement that the party was moved to Tomstown. On June 22 a micrometer survey of the Blanche was begun from the above village and carried to the height-of-land. The route followed on this expedition was up what is known as the east or Abitibi branch of the Blanche or White river, to Windigo lake, and thence by a series of small lakes to Lake Present and beyond to Beaver House lake. Besides the lakes of this chain, several others, lying in the vicinity of the interprovincial boundary, were surveyed.

The north branch of the Blanche flows out of Beaver House lake; by means of this stream, which was surveyed as far as the boundary of the township of Catharine, we were enabled to return to Tomstown without retracing our steps.

Division of the work.

The territory between the north branch and the Montreal river consists chiefly of surveyed lands; on this account I decided, as no micrometer work would be necessary, to divide the party, and directed Mr. Kerr to examine the country accessible from the north branch while I proceeded up the south branch and investigated the country towards the Montreal river. Mr. Kerr succeeded in extending his trip to Lake Kenogami, while I was successful in the object of my expedition to the westward. We met at Tomstown on August 7.

The country immediately east of the lower part of the Blanche is entirely inaccessible by canoe; to gain a general knowledge of the

rocks of this area an overland expedition was conducted eastward from Tomstown to the Quebec boundary and southward along the line to Lake Timiskaming.

Having determined that the general trend of the silver-bearing rocks is towards the north and east, I deemed it advisable to pass up the old Abitibi route via Quinze lake and examine the exposures near the height-of-land. For this purpose we left North Timiskaming on August 13 and spent two weeks in the vicinity of Opazatica and Island lakes. During this time the country immediately accessible was examined and track surveys were made on some unrecorded or ill-mapped lakes. After the completion of this work, on August 27, the voyageurs were paid off and the camp equipment was packed and sent to Ottawa. One day was spent on a trip to the Wright silver mine, after which Dr. Kerr and myself went to New Liskeard, and examined all the roads converging at that point. In order to see the progress of work on the mines during the summer, a few days were spent in the camps at Long or Cobalt lake, after which we proceeded directly to Toronto, where we arrived on September 11, having been absent on the expedition 102 days.

Cobalt (Long) lake.

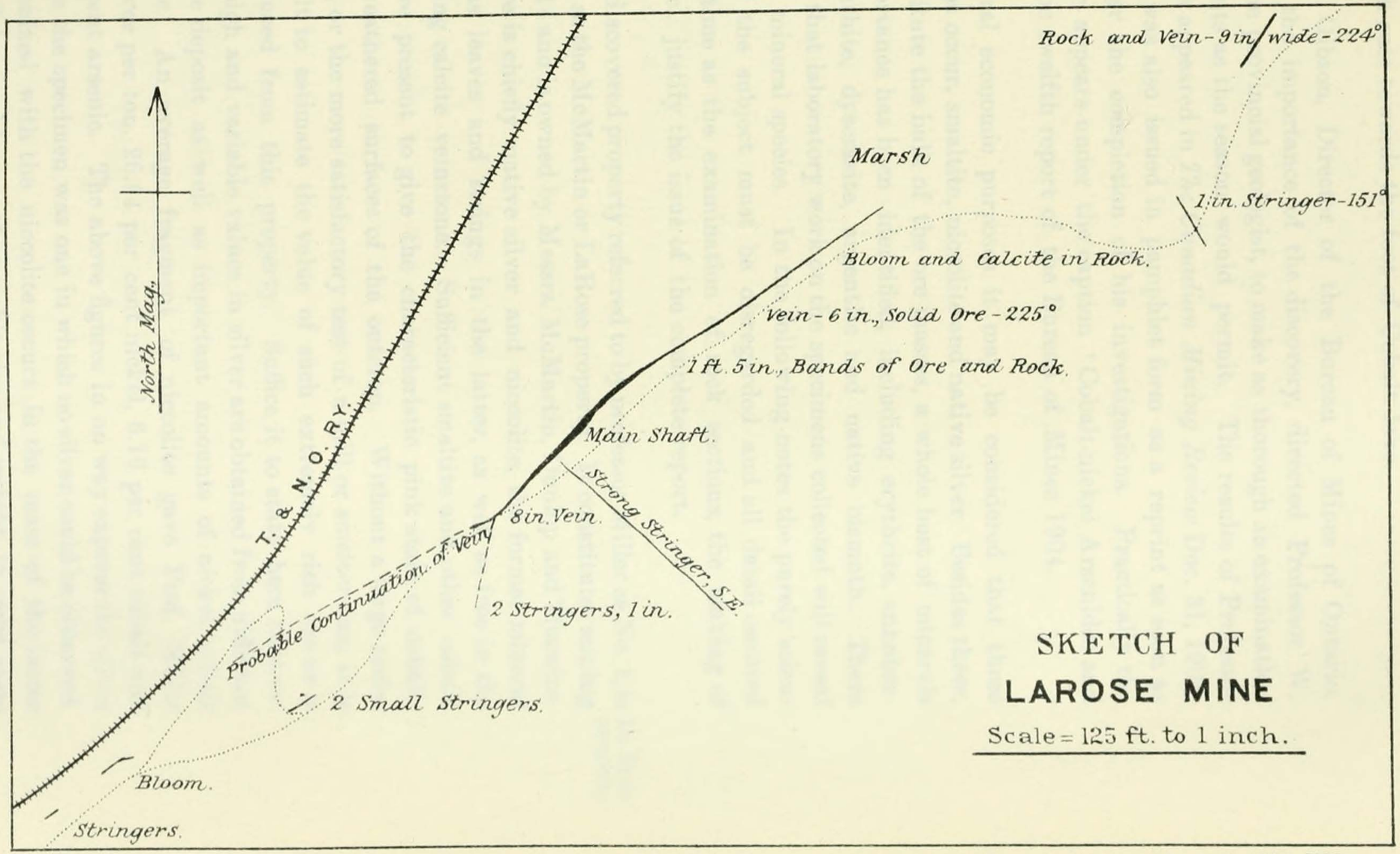
The main deposits hitherto discovered are situated in lots 4, 5 and 6 in both the fifth and sixth concessions of the township of Coleman. This area is intersected by the line of the new railway at a distance of about five miles to the south and west of the village of Haileybury.

The more important deposits are situated within easy walking distance of a small body of water, known previously as Long lake, but to which the name Cobalt lake is now given. This lake is less than a mile in length and is skirted by the railway on its north-west side. The railway plans provide for a station at this point, so that, on the completion of the line, the mines may be reached most conveniently by rail from North Bay.

The first detailed work on the geology of this area was conducted by Dr. A. E. Barlow during the seasons of 1892–94, and the results of his investigations are contained in the well-known report constituting Part I Vol. X of the annnual reports of this survey. This report is accompanied by two excellent maps, indipensable to anyone travelling in the region.

Discovery of cobalt.

While the right of way of the Timiskaming and Northern Ontario railroad was being pushed through the region in question, towards the close of the open season of 1903, the attention of certain individuals



SKETCH OF

LAROSE MINE

Scale = 125 ft. to 1 inch.

To accompany Part A, Vol XVI.

was attracted by the obviously metallic nature of some of the outcrops near the rock-cuts towards the foot of Cobalt lake.

Mr. T. W. Gibson, Director of the Bureau of Mines of Ontario, recognizing the importance of the discovery, directed Professor W. G. Miller, the provincial geologist, to make as thorough an examination of the deposits as the season would permit. The results of Professor Miller's work appeared in *The Canadian Miuing Review* Dec. 31, 1903, This article was also issued in pamphlet form as a reprint as soon as possible after the completion of his investigations. Practically the same matter appears under the caption 'Cobalt-nickel Arsenides and Silver' in the twelfth report of the Bureau of Mines 1904.

For general economic purposes it may be considered that three valuable ores occur, smaltite, niccolite and native silver. Besides these, which constitute the bulk of the ore masses, a whole host of minerals of less importance has been identified, including erythrite, annabergite, chloanthite, dyscrasite, argentite and native bismuth. There is no doubt that laboratory work on the specimens collected will reveal many more mineral species. In the following notes the purely scientific side of the subject must be disregarded and all detail omitted until such time as the examination of rock sections, the making of analyses, etc., justify the issue of the complete report.

La Rose property.

The first discovered property referred to by professor Miller as No. 1, is now known as the McMartin or LaRose property. It constitutes mining claim J. S. 14 and is owned by Messrs. McMartin, Dunlop and Timmins. The ore here is chiefly native silver and niccolite, the former mineral occurring as leaves and strings in the latter, as well as free in the accompanying calcite veinstone. Sufficient smaltite and other cobalt minerals are present to give the characteristic pink stain of cobalt-bloom to weathered surfaces of the outcrop. Without a large series of analysis, or the more satisfactory test of a mill or smelter run, it is very difficult to estimate the value of such extremely rich ore as is being produced from this property. Suffice it to state here that exceedingly high and variable values in silver are obtained from different parts of the deposit as well as important amounts of nickel, cobalt and arsenic. An average fragment of niccolite gave Prof. Miller 5.02 oz. silver per ton, 26.64 per cent nickel, 6.16 per cent cobalt and 46.64 per cent arsenic. The above figures in no way express the silver contents, as the specimen was one in which no silver could be observed. The silver mixed with the niccolite occurs in the mass of the latter mineral as flakes and leaves of variable size and weight, in some cases forming as much as 15 to 25 per cent of a hand specimen.

Assays.

An average sample of the niccolite weighing 321.5 grammes, on being crushed for assay, yielded 34.5 g. of silver which refused to pass through the sieve. The sifted portion gave 1138 oz. to the ton. This would, in all, correspond to a silver content of 11 per cent. It is in the calcite, however, that the larger pieces of silver are seen, as well as between the vein and the wall rocks, in considerable sheets, a foot or more in diameter. In the talus at the foot of the hill numerous pieces of silver have been obtained, upwards of a pound in weight.

The high value of the ore is undoubtedly proved; the question of the extent of the deposit is yet to be settled, but enough work has been done to justify the statement that a deposit of definite economic value has been exposed.

This property is situated practically on the railway, and the main outcrops of ore occur along the edge of a bluff across which a cut has been driven in the course of railway construction. The ore mass is vein-like in nature but subject to much fluctuation in width; it also shows a strong tendency to run off in stringers, at a low angle to the general direction of the vein.

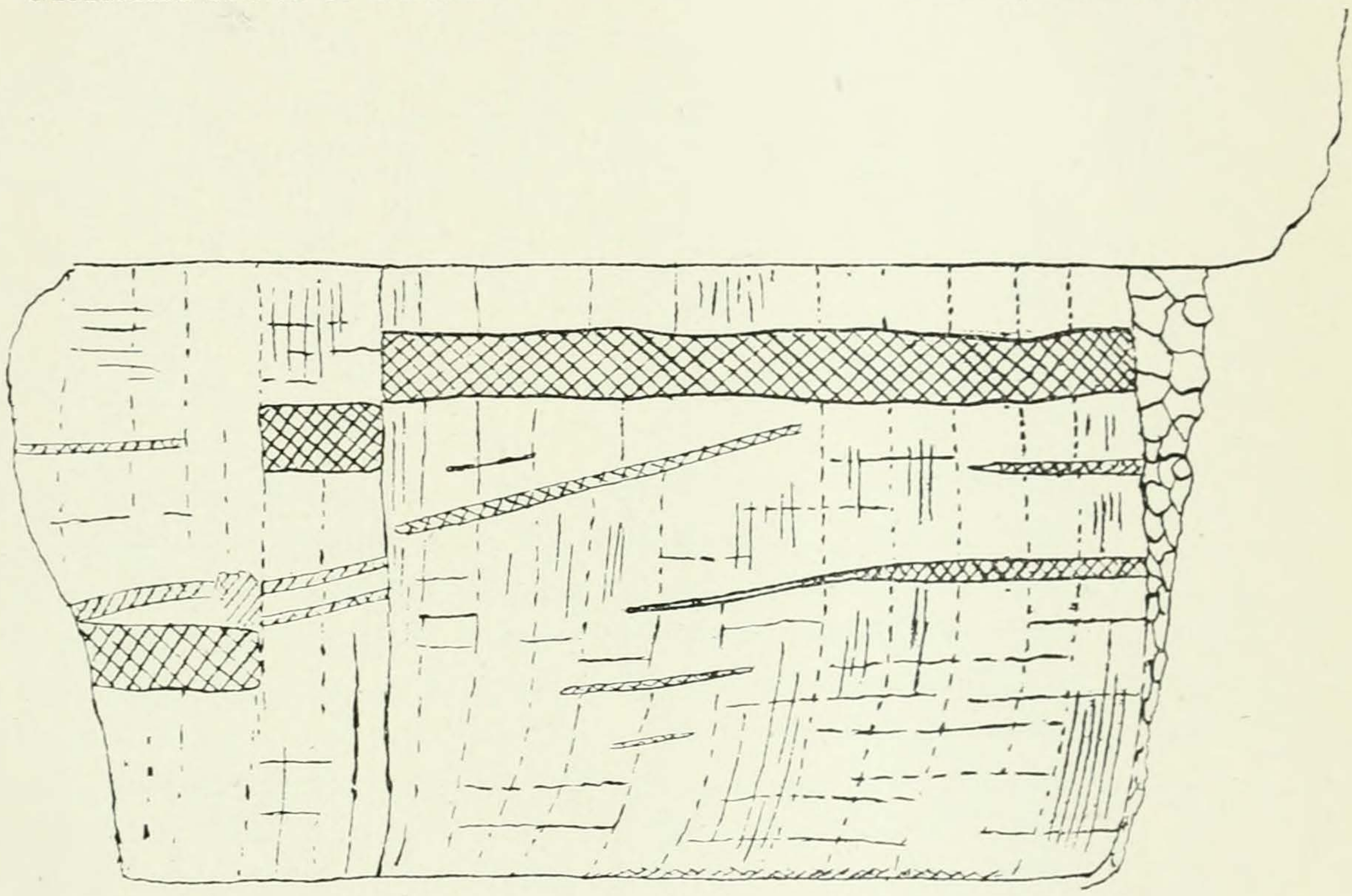
Composition of the vein.

In places, the vein consists entirely of ore, and in other parts, presents a calcspar gangue. The leaves of silver are in close association with the calcite, although they appear in the niccolite and smaltite, as already mentioned. The maximum width of the vein stuff is about eight inches, but a width of 14 to 18 inches of mineralized matter is presented in certain parts of the deposit. Without considering isolated shows or stringers connected with the vein, a continuous vein of ore has been traced a distance of about 140 feet, with an average strike of 60 degrees east of north. The north-east end of the outcrop does not entirely pinch out but passes into a small swamp. The accompanying sketch will give an approximate idea of the deposit, but this is of course liable to considerable alteration, as the work of development proceeds.

It is the intention of the owners to exploit the vein actively during the coming winter. A shaft will be sunk on the property near the widest part of the vein, and drifts carried in each direction from there. A substantial house has already been erected for the accommodation of the men and a successful winter's work is looked for.

obalt mine.

The next important property to the south-east is the so-called 'Cobalt Mine'. It is situated on mining claim R.L. 401, consisting of 168 acres, the property of Chambers, Ferland & Co. who intend to carry on work under the firm name of the Haileybury Mining Co. The



Face of the Open Cut at Cobalt Mine.

(Scale about four feet to the inch.)

main outcrop of this vein is about 100 feet above Cobalt lake and but a few chains inland. The ore in this property is of quite a different nature from that of the La Rose mine. It consists pratically of smaltite, without any vein stuff, and contains little if any silver.

Pending further analyses the figures given by Professor Miller, in the report above cited, will serve to indicate the character of the ore.

Analyses.

—	1	2	3	4	5
Cobalt	16.8	16.7	16.76	19.8	21.70
Nickel	.....	6.8	6.24	4.56	.....
Iron	7.0	7.5	.....	6.20	8.89
Arsenic	6.3	62.0	66.60	60.30	63.55
Sulphur	69.00	7.0	3.37	4.09	5.38
Insol. Silica	.9	.....	.....	2.40	.60
Water	.....	.....	.....	2.00	.....
Totals	100.00	100.00	.....	99.35	100.12

Although these specimens were taken from different parts of the vein they are seen to be fairly uniform in chemical composition, and therefore may taken to express the general nature of the ore. As before stated, the ore is essentially smaltite, but small grains of niccolite may be seen scattered through the mass. The general appearance of the ore is dark lead-gray metallic, in some places more shining than in others; this is especially seen in the crystals which are common in the wall rock near the vein. Wherever the veinstuff is fractured, erythrite appears on the surface and is found also to occupy secondary cavities in the ore body. Several tons of cobalt-bloom were taken from one such opening in the work of exploiting the deposit. Bloom also occurs in small cracks in the country rock near the vein and wherever the cobalt ore appears at the surface.

Work done.

The first work in this vein was done near the top of the hill, about 100 feet above Cobalt lake, on the main outcrop, where a shaft was sunk and a cut run along the vein, following the strike, which is E. 55 S. At the time of my visit in June, this cut was 34 feet long and 9 feet 5 inches wide, at the widest part. At the southerly end of the cut, the shaft was sunk to a distance of about 30 feet. The face of the vein, as exposed on the south side of the shaft is, or rather was, very instructive. The cross-cut shows, from N.E. to S.W., the following appearance: one foot of dark slaty quartzite, ten inches of solid ore, two inches of rock, one half inch of ore, ten inches of rock with small amounts of ore, one half inch stringer of ore and fourteen inches of rock with

numerous approximately parallel stringers of ore. This rock is very fine grained and filled with small cubes and octahedra of ore. The rock is followed by from three to six inches of irregular, decomposed rock and mineral, closely banded and much fractured. This belt probably represents the limit of the ore-bearing rock, for little or no mineral occurs from here to the limit of the shaft, a distance of four feet. In this rock, however, joints, parallel to the vein, occur, and on the extreme edge of the cut a half-inch stringer of impure ore forms a sort of line of demarkation and an imperfect limit to the shaft and open cut.

Strike and dip.

As already stated, the strike of the vein is E. 55° S. The dip appears to be about 8° to the south-west. Rock movements have displaced the vein to a considerable extent. At a distance of five feet below the shaft platform, a displacement, about equal to the width of the vein, has moved the lower strata to the south and west. A horizontal movement in the same direction has again displaced the vein at a depth of twenty inches below the first slip. The displacement is considerably greater here than in the first instance.

Lineal extent.

A rough sketch of the appearance of this face is seen in fig. II. On my return to this property, in the fall, it was found that the shaft had been sacrificed to continue the open cut along the vein, and that more than 200 tons of selected ore had been mined, as well as an undetermined amount of second grade material. It is impossible to say how great a lineal extent this vein may possess, for it is covered by a heavy deposit of soil to the south-east. In the opposite direction it continues to Cobalt lake,. not, however, with the same strength observed near the open cut. In the bottom of the cut the ore is seen to continue in numerous stringers and in some wider veinlets. The great vein seems to be broken and shifted by the approximately horizontal faulting already referred to. On this account, it would appear at first sight as if the deposit were decreasing in value at greater depths. It is very unlikely, however, that a vein with the strength and persistency of this one would pinch out at such a limited depth. It is far more likely that the local faulting of the rock has led to a repetition of the two displacements so clearly shown, and that the vein will be found as strong as ever to the south and west of the present line of working. Disregarding the arsenic and nickel, and basing the value of this ore on the cobalt content alone, it is worth about $150 per ton. The cost of winning, at the present level at least, can not be more than $5 per ton. It is apparent, therefore, that much smaller stringers can be profitably worked, and that the high

value of the ore will make it possible to subject the run of the mine to extensive hand-picking.

Stringers.

On the same property several small stringers of cobalt ore essentially similar to the main vein are found. Most of these are in association with the deposit described above, but one decided stringer starts from the water's edge at about the same point as the main vein and strikes due east with a vertical dip. This stringer reaches the considerable width of three inches in places, and has already been traced 100 feet up the hill.

Cobalt-bloom.

At several points, also, along the water's edge and elsewhere on this location, cobalt-bloom has been found in small quantities, all pointing to the remarkable dissemination of cobalt in this vicinity.

Little Silver mine.

The high rocky land on which the last described deposit is situated continues to the south and west along the shore of Cobalt lake. It is cut, however, by a deep ravine containing a very small creek which discharges into Cobalt lake at the bight of a small bay in the south-east angle of the lake. On the northerly side of the escarpment caused by this ravine, and about fourteen chains from the water, occurs a third important mineral deposit. This mine is known locally as the 'Little Silver,' and is the property of Messrs. Ferland, Chambers & Co., the Haileybury Mining Co., which is also the owner of the 'Cobalt Property.'

The general trend of the bluff is north and south; straight up the side, almost ideal in its development, extends the vein, a distance of sixty-four feet. How far it extends below the level of the valley remains for development to reveal. The horizontal outcrop of the vein along the top of the hill, as well as its general strength, will be best seen by the following tabulation:—

From edge of bluff to top of bluff—the slope of the brow—39 feet, striking about 80 degrees.

Parting of the vein.

At the top of the bluff the vein breaks into two portions, including a lenticular space 37 feet feet long. One vein is 6 in. and the other 5 in. wide. General strike, 78 degrees. Vein 9 in. wide for a distance of 15 ft. 6 in. at 80 degrees strike.

At the eastern extremity of this portion the width increases to 1 ft. 4 in. of vein and mineralized rock. Here a second division occurs, a stringer leading off at about 70 degrees, but the main vein continues at 80 degrees a distance of 21 feet continuously traced. At this point

the stripping is done at intervals only, but numerous outcrops are to be seen for 150 ft. farther. The vein does not pinch out here, however, but is merely covered by the heavy accumulation of soil not yet removed in the process of development. At a distance of about 70 feet from the end of the last outcrop, a third bifurcation of the vein is observed, and very rich ore is accumulated at the angle where the two components separate.

Near the top of the bluff, the vein is from six to ten inches wide and is composed of a number of lenticular portions of harder matter separated by bloom and native silver, the whole much decomposed. Ten feet down, the banded lenticular nature of the vein stuff gives place to a distinct bilateral vein, with the filling material reaching from both walls to an indistinct line in the centre.

Description of vein.

Towards the bottom of the bluff the distinct vein-like nature of the deposit is less pronounced. Here, where considerable opening up has been done, the vein stuff is less decomposed and is seen to consist of fine, granular smaltite mixed with the quartzite which forms the the country rock at this level. The vein shows lenticular masses of this ore, pinching out almost entirely in places. The fissure is by no means so clean cut as appears from an examination of the surface of the bluff, but the ore seems to run in sheets, parting from the main vein at a low angle and either pinching or returning to the vein again, so as to enclose a lenticular portion of the country rock. As above stated, these sheets of ore consist of fine, granular smaltite with rock matter. Almost invariably, each sheet is lined on both sides with a generous layer of native silver, which mineral also permeates the ore in small leaves and grains. On breaking down the bands of smaltite, the silver is seen adhering to the wall rock in considerable sheets. A large amount of dirty ferruginous selvage matter is met with in many parts of the vein ; on assaying, this is found to be surprisingly rich in silver, running as high as 36 per cent. An average of several samples assayed in the laboratory of the University of Toronto gave 9,450 oz. per ton. The maximum width of the main vein, not all ore, however, is 1 ft. 5 in.

Offshoot of the vein.

About nine feet to the south of the main vein, a narrow seam of similar ore, rich in silver, is found. This nine feet has been removed in making an open cut in the side of the hill. The stringer seems to be nearing the vein, and is probably an extreme example of the habit of the vein to embrace lenticular inclusions of the country rock

Although a large amount of cobalt is present in this property, it is to the silver that we must look for its greatest value. Assays of such

exceedingly rich material are not of any value, as uniform sampling is out of the question. Much material is extracted which can not run less than 70 or 80 per cent in silver; some of the poorest contains from 15 to 25 per cent of the precious metal.

Loose silver is common in immediate proximity to the vein; every depression in the rock on the top of the hill contains much free silver. The earth occupying these depressions is deemed by the owners of sufficient value to sack and ship for treatment. A local process of washing is not satisfactory, as the flaky nature of the silver causes it to be borne away by a stream of water. Loose silver.

There can be no doubt that a very valuable deposit of silver exists on this property, R.L. 404. The richness of the ore is established. The future value of the mine will depend more on the maintenance of strength in the vein than on the assay value of the ore.

The Haileybury Mining Co. are now driving a tunnel into the bluff at the bottom of the hill. The ore taken out is to be sacked and shipped for treatment.

It is considered advisable to quote here the results of assays given in Prof. Miller's report already cited.

All the below mentioned samples are of the earthy, weathered ore from the Little Silver mine. Analyses.

—	I	II	III	IV
Silver	23 97	27 00	26 24	16 60
Cobalt	2 85	2 80	8 34	3 91
Nickel	0 97	1 00	5 26	1 42
Arsenic	18 30	19 30	13 28	19 79

A short distance east of the vein the quartzite is seen to be highly impregnated with fine granular galena. This is at a level just below the contact to the conglomerate. It may throw some light on the origin of the silver to note that this rock gave 1 oz. 5 dwt. 16 grs. to the ton. As the galena forms but a small portion of the material assayed, that mineral itself must be very rich in silver.

Almost at the southern end of Cobalt lake, a little distance up the easterly shore, is situated the Darragh and McKinley mine on location J. S. 14. This valuable property was discovered by Messrs. Darragh Darrah and McKinley mine.

and McKinley, with whom became associated Mr. Anderson. The property was taken up in the names of these three men and a certain portion was subsequently sold to Mr. Gorman of Ottawa. The firm is now actively developing under the name of the 'Cobalt-Silver Mining Company.' The main outcrops are situated in and along the side of a small bluff running parallel to the shore of the lake and about forty feet inland. Much local disturbance is evident in the immediate vicinity of the vein, including minor slipping of the rock and glacial disturbances. These effects have caused some trouble in getting down to a continuous vein, which has now happily been accomplished. The main vein runs almost due east and west, and is accompanied by many small stringers which caused considerable difficulty and annoyance in the exploiting of the property. It can serve no useful purpose now to describe the various stringers which were so anxiously watched during the early days of development. At present there seem to be three parallel veins of fairly constant strength, one four, one six and one seven inches in width, enclosing about twenty-two inches of ore, calcite and rock matter. This mineralized band has been traced about 250 feet. The ore is essentially smaltite with large amounts of native silver; of course, many other arsenides and sulphides, as well as native bismuth and considerable niccolite, occur. It is hoped that when the complete report is issued these mineral curiosities may be more fully dealt with. Here, for purely economic and practical purposes, it will suffice to consider the ore as consisting largely as above indicated. It will give a good general idea of the nature of the ore to quote again from the report of Professor Miller.

Composition of ore.

'A sample of the ore, which weighed $15\frac{1}{4}$ oz. and showed native silver, together with smaltite and considerable cobalt-bloom, was found by Mr. Burrows to possess the following composition:

	Per cent.
Silver	11·10
Cobalt	15·08
Nickel	5·56
Arsenic	49 68
Sulphur	2·55
Gold	None.
Iron	6·38
Insoluble matter	5·50
Undetermined, water, &c.	4·15
	100·00

As the work of development proceeds on this property the quantity of native silver obtained is astonishing. Until a statement is made by the owners the actual yield cannot even be estimated. Assay values mean little or nothing in a deposit where masses of silver of several pounds weight are constantly being encountered. (A specimen of smaltite, apparently devoid of silver, gave 26 oz. per ton.)

Calcite.

In the Darragh and McKinley mine the presence of considerable calcite accompanying the ore suggests the manner of occurrence in the McMartin property. The character of the ore is also much the same except for the much greater predominance of niccolite in the McMartin vein. At the Darragh and McKinley the rock has been greatly fractured at the time of the formation of the fissure. This is proved by the presence of a great number of stringers of calcite permeating the rock in all directions near the vein.

It is the intention of the owners to sink a small shaft on the most promising part of the outcrop and to ship the product for treatment.

Hudson's Bay Co's claim.

South and west of the railway and a few chains in from the corner of the lake, a claim has been located by the Temiskaming and Hudson's Bay Company. The prospect consists, at present, of a small crevice striking east and west with a vertical dip. Calcite is seen in the crevice, and also stains of cobalt-bloom. Much work is necessary before any opinion can be passed as to the value of the deposit.

J. B. VI claim.

Another very valuable property is J. B. VI., situated near the north-west corner of Cobalt lake. The outcrop is a few chains inland, but in immediate proximity to the railway. The vein strikes E. 25° S., and has been traced about 250 feet. The maximum width of the vein is about eighteen inches, with seven or eight inches of solid ore. The ore is of much the same nature as in the Darragh and McKinley, consisting of cobalt arsenides and a wonderful amount of native silver. A considerable amount of calcite vein-stuff accompanies the ore. Towards the westerly end, the vein is of less strength and seems to be less argentiferous. Reference was made above to the astonishing silver content of this vein. It is almost impossible to speak of the percentage of silver raised, when slabs of an inch or more in thickness and a square foot in extent are commonly met with, as well as great irregular knobs and masses in the calcite gangue and in the cobalt ore.

This property is owned by Mr. W. G. Trethewey, who is erecting a substantial living house and who intends to put in a small boiler and pump to clear the mine and to work steam drills in sinking the proposed shaft, which is to be carried down on the richest part of the vein.

Cross Lake claim.

Other properties have been located in the district, but only one requires note here, and that is a prospect belonging to Mr. Glendenning, situated near Cross lake, to the eastward of the mines already

described. This prospect consists of a small vein of smaltite, the size of which has not yet been determined.

Cobalt-bloom has been observed at many places throughout the region, and it is a reasonable assumption that other valuable properties will be located as the region is more thoroughly prospected. At present the area known to produce cobalt and silver is rather small, being confined to the immediate vicinity of Cobalt lake. The extremes of even slight indications do not reach a greater distance than from Cross lake to the Montreal river. (It is worthy of note that Prof. Miller has seen bloom to the north-west of New Liskeard.)

I am indebted to Mr. J. W. Blair, O.L.S., of New Liskeard, for the following list of claims located in the vicinity of Cobalt lake, up to December 1. This list does not include all the claims located, but only those regarded as presenting reasonable prospects. These are, in addition to those described in the text :—

Other claims.

J. B. 7, south of the Trethewey mine.
Claim on lot 6, con. VI., Coleman (near Sasaganiga lake).
Claim south-east and west of the McKinley and Darragh, J. B. 3.
Claim on north-west corner of lot 2, con. IV., Coleman.
Claim on north-east corner of lot 3, con. IV., Coleman.
Claim on south-west corner of lot 2, con. V., Coleman.
Claim on north-east corner of lot 3, con. V., Coleman. (This location is said to present native silver occurring in the gabbro.)
Claim on north-west corner of lot 2, con. V., Coleman.
Claim on south-west corner of lot 3, con. VI., Coleman.
Claim on the south-east corner of lot 3, con. VI., Coleman.
Claim on lot 1, con. VI. (doubtfully reported).
Claim in the centre of lot 2, con. V., Coleman.
Galena on island in the east end of Gereau lake.

Geological formation.

Stated briefiy, the geological formation of this region is a series of approximately horizontal sediments. Although minor exceptions may be found, these sediments consist of a series of fragmental matter modified by the action of water. The general, if not universal, sequence is, in ascending series, fine slate-like clastic rock ; medium-grained grit represented in places by quartzite : breccia-conglomerate. (Repetitions are known, and although the general sequence is as above, it is best to consider the three as different phases of the same series.) The lower rock is dark or light gray to black in colour, very fine-grained, reasonably hard, and weathers to a dirty white material with comparative rapidity. This rock passes into the second series without

abrupt change. In this region, a typical fine-grained 'quartzite'* is the most prevalent example. The upper rock is a strange mixture of rounded and angular fragments of pre-existent material cemented in a matrix more or less comparable with the lowest member of the series. In this conglomerate are found rounded pieces of granite, felsite and many other acid rocks. Examples of the basic series of igneous rocks do occur, but much less frequently than the acid series.

In addition to these crystalline rocks the fragments present examples of the fine-grained metamorphosed schists of an older formation. It is worthy of remark that these latter are more likely to be angular in outline than the igneous fragments. Until the rock sections are examined it would be premature to speak further of the petrography of the series.

The age to be ascribed to this group of rocks and its position in the complex formations constituting the most ancient rocks of the earth, is a matter to be approached with some hesitation. When the greatest authorities differ it is very difficult to decide on the proper nomenclature, so that the present writer feels that it would not be out of place to point out the different ways of regarding the subject. Age of the rocks.

The rocks near Cobalt lake are practically horizontal, but are bent into a number of low anticlines and synclines, the former of which by double plunging present flat-topped domes. Many magnificent exposures are seen in the rock-cuts along the railway from Cobalt lake to Montreal river. The sequence of the series is difficult to determine in these railway cuts, quartzite and conglomerate appearing in neighbouring cuts without any apparent relationship to each other. It would appear from some observations that repetitions occur, and that local conditions determine which should be at the bottom. In the great majority of cases, however, the slate is the foundation upon which rest conformably quartzite and then the breccia-conglomerate. This is well seen at the Little Silver mine, where the fine-grained rock at the bottom passes imperceptibly into the quartzite, the whole forming a bed forty-two feet in thickness, which is covered by twenty-two feet of breccia-conglomerate to the top of the hill. The dip of these beds seems to be 0°—10° to the westward.

At the Cobalt mine a distinct anticlinal dome is observed, the fracturing of which, near the summit, is responsible for the existence of the vein. The wall-rock belongs to the lower or middle member of the series, the upper having been removed by erosion. The conglomerate Anticlinal dome.

* This rock is popularly called 'quartzite,' owing to it macroscopic appearance. It weathers white, however, and doubtless contains much feldspar.

does, however, occur on descending the hill; this is rendered possible by the decreasing dip of the rocks as the summit is receded from.

The other mines do not exhibit the structure of the country as well as the two above cited, but the same series of rocks is exposed in each, with nothing to indicate, in any case, that the metallic matter shows a preference for a particular member of the series.

Gabbro.

Large masses of gabbro occur on the outskirts of the metalliferous region and even approach within short distances of the mines. Whether these masses have any connection with the deposition of the silver, nickel and cobalt is merely a matter of conjecture.

We have, then, a circumscribed area, characterized as above, in which extremely valuable deposits are found; it is obviously of importance to trace this belt of rocks to its end, and thus ascertain the area in which a possibility exists of another series of deposits like that at Cobalt lake. By the direction of Dr. Bell, I left the immediate vicinity of the mines and spent the greater portion of the summer in working up the northerly extension of the silver and cobalt bearing series.

The metalliferous rocks are interrupted, to the north of the immediate region of productiveness, by masses of gabbro, limestone of the Niagara period, and a series of schists, the nature of which will be considered later. Following, or more or less interacting with, these interruptions lies the great mantle of clay which hides the rock for many miles to the north and west of lake Timiskaming. That the exposures of silver-bearing rock near Haileybury are actually continous to the northward is evidently not true, but that a great extent of precisely similar deposits stretches beyond the interruptions mentioned above is a fact, hinted at in some earlier reports, but established beyond doubt by the investigations of last summer.

Area of the metalliferous rocks.

Without going into details it may suffice for this report to state that the belt referred to extends in a somewhat narrow band from the outlet of Windigo lake in the township of Marter to the height-of-land north of Opazatica or Long lake. There is evidence that its trend there becomes more easterly and that it follows the great height-of-land ridge farther into Quebec. The south-easterly limit of the belt is approximately a line from the south end of Fish lake on the international boundary to a little beyond the north-east angle of the township of Ingram. The extension of this line to the north-east will be found to impinge on the shore of Opazatica lake near the

northern end. This is in accordance with the facts. Here, however, as already observed, the tendency of the belt is to turn eastward and it swings off in that direction, following the great hills of the height-of-land. The north-western limit, stated in the same rough way, extends from the centre of the township of Marter to the north-east angle of Larder or Present lake, thence to the south shore of Labyrinth lake, then swinging east and south, it crops out on Island lake, and continues westward along the northern flank along the height-of-land ridge. The further extension of the formations eastward was not examined, beyond a mile or two by overland trips. That similar rocks crop out still farther east is seen in the following note from the Summary Report of Mr. J. F. E. Johnston for 1901: 'On an island at a quarter of a mile from the inlet, a volcanic breccia is exposed, containing slate pebbles, pyrite and a pseudomorph, probably siderite after pyrite.' This is on lake Lois, about thirty miles north and east of Island lake, but along the height-of-land ridge, which bends quickly to the north a short distance east of Island lake. It is also interesting to note that Mr. Johnston does not again mention either breccia or slate in any amount until he reaches the *west* shore of Kekeko lake. This lake comes close to the height-of-land east of the north end of Opazatica lake. I would conclude from Mr. Johnston's observations that the belt of rocks in which we are interested extends as a narrow elevated belt approximating to the height-of-land at least as far as Lake Lois.

Breccia-conglomerate

Breccia-conglomerate has been reported on Kenogami lake by Mr. Wilson, Mr. Bolton and Mr. Kerr; according to the last named it overlies Keewatin rocks, tilted at high angles. Our work on the north branch of the Blanche shows that the conglomerates of Kenogami lake are not continuous with those of Lake Present but that the two areas are separated by Keewatin rocks. Northward from Kenogami lake Mr. Wilson reports conglomerates across the height-of-land to Kekekdo lake. That these rocks are of the same age as the silver series is undoubtedly true; that they are as likely to hold silver as the Haileybury rocks is probably not so certain, as their slight extent and somewhat disturbed condition show different physical conditions. Between the Blanche and the Montreal rivers, a large area of gneiss occurs towards the north part of the region examined. The southern part shows Lower Huronian rocks and large masses of eruptive. That the upper series comes in here is probable, though the work of the summer revealed nothing of their extent. On lots 5 and 10 in the township of Beauchamp rather clastic looking rocks were seen, as well as large boulders of conglomerate. Also, on lot 5 in the IV concession of Henwood, was seen a gritty sandstone belonging to some upper

series but not necessarily to the group exhibited at Haileybury. The region is covered by clay, and these outcrops are far apart and of limited extent. All the other isolated outcrops encountered are of basic eruptive. There is no doubt that some upper clastic rocks occur in this section, but having abandoned my camp, and being pressed for time, I was unable to penetrate far beyond the limits of the roads. I consider that a close examination of the westerly parts of the townships of Henwood, Cane and Bryce might reveal rocks of the silver series.

White river.

The White river is a stream of considerable size, discharging into Lake Timiskaming by several channels (chenaux). The average width near the mouth is from two to three chains. The waters are decidedly muddy : hence the name of the stream. The matter suspended in the water is chiefly clay derived from the erosion of the extensive agricultural areas of which this river is the chief drainage agent. Small steamers ply as far as Tomstown, the pioneer village about twenty miles up. During high water the navigation is easy for these little vessels, but some difficulty is experienced from sand bars below Tomstown during the periods of drought. No rock is exposed on the river thus far, but rough morainic hills are rather conspicuous, and it is worthy of note that huge boulders of the breccia conglomerate are to be seen in these drift deposits. About two miles above Tomstown the first rock is encountered in the form of a narrow point on the west side. Macroscopically, the rock appears to be a diabase with very white feldspar. The White river is an almost ideal drainage system, branching as it does into a number of symmetrical tributaries. This is seen a few miles above the rock referred to. The most easterly branch is known as the Abitibi branch or east branch ; the former name is given to it owing to the fact that a canoe route exists via this stream to Abitibi lake.

The central stream is known as the north branch. This member divides into two a short distance above its confluence with the most westerly or south branch. The south branch drains a large area to the west, and north-west and also, by a minor tributary, the south-west or Jean Baptiste branch, stretches into the south-west.

East branch.

Abitibi branch—The east branch shows much more current than the main stream and is more crooked than is indicated on the Ontario township plans. Extensive scarped banks of stratified post-glacial clay are exposed at many points. This stream flows from Windigo lake. At its head is a portage of a mile and a half, and two small ones occur below. At the lower portage an exposure of fine-grained compact gray clastic is seen.

On approaching the long portage more exposures of a similar rock are observed. A somewhat lighter colour and more quartzose appearance are presented and a careful search revealed *some small granitic pebbles in the rock* (a little higher up, large ones occur). About twenty chains above the foot of the long portage a picturesque fall is seen, where the river drops vertically about fifteen feet. The rock is a breccia-conglomerate with large (as much as five feet in diameter) fragments of granite and other rocks. The whole is distinctly stratified, layers, in which are many large fragments, being sharply interstratified with beds in which are none. Above this fall are a flat table-like surface and a second cascade of two feet, over a coarse clastic layer of rock, in which however no large fragments occur. We have, in these rocks, the first and only outcrop of the silver-bearing rocks to be met with on the White river proper.

Wendigo lake.

A somewhat different rock is seen towards the eastern end of the long portage. It is doubtfully clastic in origin and not exactly comparable with the rocks at the falls.* Darker and lighter bands occur in a very irregular manner, while the whole is traversed by numerous stringers of quartz. The same rock is seen on the south-west angle of Wendigo lake and continues southward along the eastern town-line of Marter to about the middle of Con. II, where it is cut off by a huge mass of gabbro. South of this point the rock is hidden by drift. To the south-eastward, however, other rocks occur which will be noted later.

Order of the rocks.

Hills of from 150 to 200 ft. elevation occur on both sides of Wendigo lake. The rocks exposed consist of fine slate-like examples, quartzite passing into graywacke and breccia-conglomerate. On the small lakes south of Wendigo the same thing is seen, while some of the islands show gabbro, and a large mass of gabbro occurs farther south, as already indicated. At the narrows, towards the eastern end of Wendigo lake, one of these hills was ascended, and the following order was noted :—

Rock at bottom, a fine chocolate-coloured slate, ferruginous in places, 54 ft.

Hard fine-grained clastic rock, quartzite or graywacke, 10 ft.

Slaty rock like that at bottom, 26 ft.

Fine to coarse quartzite passing into grit, and at the top, into a distinct breccia-conglomerate, 90 ft.

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*This rock may be of the older series. A microscopic examination will reveal its nature.

Raven lake. From Wendigo lake a chain of small lakes leads in a north-easterly direction to Raven lake on the interprovincial boundary. A high ridge follows the southerly side of this chain of lakes, and a less pronounced ridge the northerly. The southerly ridge was ascended at several points and, universally, the same succession of rocks was revealed, roughly, slate, quartzite or grit conglomerate in ascending series. *All these rocks dip away from the lakes, i.e., south-easterly at a low angle.* The northerly ridge is less constant in its petrographic expression but consists essentially of the same series, though more broken and injected by later eruptions of diorite, etc. Veins of quartz occur in this fractured zone. No very rich examples were collected but several specimens yielded good traces of gold. (It is possible we are on the border of the Keewatin here.)

Lizard lake. Raven lake makes a sharp turn to the southward at a point about half way down. The series of slates and conglomerates follow the shores, and on this lake as well as on Fish lake farther south, *still dip away from the lakes, in this case to the south-west.* These rocks continue southward until cut off by the granite mass of Lizard lake. The Haileybury rocks were observed to be folded into low domes or doubly plunging anticlines. The same thing on a larger scale is seen here, but the anticlines have fractured. The two strings of small lakes occupy the axes of two anticlines which originally converged to a V shaped point near the present position of Raven lake. Lateral cracks have given origin to the steep lake valleys observed at several points, especially along the southerly side of the long chain of small lakes.

Lake Present. Lake Present discharges into Raven lake by a considerable stream, entering the latter lake near its outlet. On this river the same series of rocks are exposed, and on Lake Present they occur along the east shore, and on the south side of the north-east arm. The northern side of this arm shows sericitic schists, etc. Slates and conglomerates also occur on the point stretching into the lake from the north shore. Certain of the islands in the southern part of the lake are likewise composed of these rocks. The rest of the shore presents rocks which I am disposed to separate from the even-bedded upper series, and classify as Keewatin. These rocks are chiefly altered acid and basic eruptives, but, in the field, showing more fracturing and being more injected with quartz stringers.

Beaver House lake. Northward, from Lake Present, a series of small lakes leads to Beaver House lake, a long narrow sheet of water stretching in an S-shaped manner a distance of about twelve miles. Over practically

all this region, i.e., from the slates of Lake Present to the extremity of Beaver House lake, the rocks are more or less alike, consisting of hard greenish-gray quartz schists (altered acid rocks), belts of diorite and dioritic schists, rusty dolomitic rocks and sericitic schists. Many belts of beautiful porphyry cut through the series. On the third small lake, north of Lake Present (Lake Malone), are highly ferruginous schists, with an average strike of W. 30° N., and a dip of 30° to the northward. On a small island in the lake the dip is reversed to 80° S. while the strike remains the same. Here the slaty rock becomes highly charged with magnetite, but, as far as present indications show, no economic deposit is disclosed. This deposit would appear to be an easterly extension of the iron range in the township of Boston. On the fifth small lake north of Lake Present, a slight exposure of conglomerate should be noted. This occurs on an island near the eastern end of the lake. Among the pebbles enclosed in the dark gray matrix were noted jasper, granite, gray schist, felsites, etc. The whole is somewhat stretched and shows evidence of much alteration. The surrounding rocks are all green fissile schists. It would seem justifiable to regard the small exposure of conglomerate as merely an outlier of the upper series.

Throughout this region the soil is sand and gravel, no considerable amount of clay having been observed since entering Wendigo lake. The timber is, for the most part, small, and not comparable with that observed on the lower parts of the White river. Soil.

The north branch of the White river breaks out of the southern end of Beaver House lake in a small falls over rusty and dolomitic rocks. These rocks, with some fissile, sericitic schists and altered diorites, are the only examples seen, with the exception of a small exposure of crushed conglomerate, just above the point where the third small lake north of Lake Present (Lake Malone) makes its way, by a short narrows, into the north branch. A short distance north of the north boundary of the township of Catharine, a trail leads off on the west side to the Jean Petit copper mine. The rock at the mine seems to be a basic eruptive, but bands of an acid nature striking W. 30° N. occur close to the deposit on the north side. Farther to the north the basic rock occurs again. Both calcite and quartz, particularly the former, occur in the fissure, with a considerable amount of copper pyrites. The condition of the property does not permit of any opinion as to its value. Similar occurrences of copper pyrites were noted at several places in this district. On the west side of the river, at the northern boundary of Catherine, and at a height of 100 feet Jean Petit mine.

above the water, sericitic schists are exposed. Many bedded quartz seams occur in the rock, and the region should be worth prospecting. (Strike, W. 10° N., Dip, vertical).

Navigation.

Although interrupted by a few short portages, the navigation to this point from Beaver House lake is fairly easy; below, however, the stream passes between high and rocky hills, rendering it very swift and producing long rough rapids. Just east of the river, on Con. II Catherine, the ridge was again ascended in order to examine the outcrop of rock. The lower part of the hill is diorite that seems to show quartzose schists overlying it. All is much mixed, however, and the whole hill is mostly of eruptive origin. A remarkable dike of beautiful porphyritic diorite crosses the country in a direction N. 30° E.

Below the long rapids, several portages are encountered past rather abrupt falls; the longest is the Sand Hill portage, of 1300 paces, over a high hill on the east side. Fall is 162 ft. aneroid. Elevation of summit of hill 216 ft. Rock is fine-grained diorite, well glaciated.

Tomstown to Lake Timiskaming.

Having thus established the western limits of the Upper Huronian belt, I was very anxious to find its southern boundary in the region to the east of Tomstown. This section is inaccessible to a canoe; it was, therefore, decided to make an overland expedition eastward from Tomstown and down the provincial boundary to Lake Timiskaming. Clay soil and alternating stretches of large and small timber continue to near the eastern boundary of Ingram, where a large swamp is encountered. This swamp continues to the southward as far as the boundary of the township. On meeting the surveyors engaged on the township of Pense, we altered our route and went a half mile along Con. II. of the new township. Soon, the country rises out of the big swamp, and a hill of rough eruptive (gabbro) is encountered. It is a possible assumption that this hill represents the gabbro mass seen south of Wendigo lake, which would thus seem to have a south-easterly trend. Again we turned south and proceeded along the northern line of Brethour to the boundary of the province. No rock was encountered, a heavy mantle of clay covering the whole region. This clay area is deeply dissected by ravines, rendering it very rough for agricultural purposes. Good timber is almost continuous. One half mile south of Ingram, and a little east of the boundary, the first rock is encountered; this is a dark gray micaceous schist striking N. 5° W. The schist is mixed with a massive basic rock and crossed by an 18 in. dike of felsite striking N. 70° E. This felsite seems to pinch out in the schist to the westward and to pass into an area of white granite to the east. It may be that this granite is continuous

with the mass of similar rock encountered on Lizard lake. Between this point and the crossing of Wright's creek, several exposures are seen of the white granite and the dark schist, with a persistent strike a little west of north. Southward from here, no more granite is met but, at the bridge on Wright's creek, near the boundary, the mica-schist comes in strong and continues for some miles down the river. (Seen near post at Lots 9 & 10 Con. II & III Brethour). At certain places, where the lumbermen have conducted some operations, this mica-schist is seen to advantage. When fresh, it has a somewhat blue colour, and shows a glistening surface on the planes of parting. It is a distinct and well-defined rock in the field and has not been previously mentioned in these notes, but its occurrence will be referred to again. No other exposures of rock are seen to the shore of Lake Timiskaming.

Micaceous rocks.

From the head of uninterrupted navigation on the Quinze river, a road known as Klock's road leads to Lac des Quinze. Along this road are exposed rocks comparable with the above described mica-schist. In places, the micaceous structure is not so apparent and the rock resembles a graywacke. The strike is, at first, a little west of north, but towards the granitic contact to the eastward, it swings around to a direction nearly east and west. The same series of rocks crosses the Quinze river and crops out at many places, particularly at the rapids and falls. A glance at the map will show that granites and gneisses cut off this rock about half way across Klock's road. They continue along Quinze lake and follow the lakes of the Abitibi route to a point rather more than half way up Opazatica lake. Here we find the outcrops of a dark gray rock, which becomes schistose and micaceous in places, increasing in this peculiarity towards the north.*

At the north end of Opazatica, the dark micaceous schist-like rock strikes 70-80° east of north and dips at varying angles to the nortward. I feel assured, as far as macroscopic examination and the relations in the field are concerned, that the rocks at Wright's creek, on Klock's road, on the Quinze and on Lake Opazatica are the same. The whole probably belong to the lower series for they are certainly not at all comparable with the silver-bearing rocks. Their origin is probably eruptive and they are associated with eruptives at many places, notably near the first outcrop on the east side of Opazatica lake. The development of schistosity and the production of mica would seem to be the result of alteration and dynamic forces.

* A section of the massive parts of this rock points to a distinctly eruptive origin.

Conglomerate

The conglomerate of the Upper Huronian overlies this secondary mica schist *unconformably* at the head of Opazatica lake. Westward, the conglomerate rises immediately into hills and seems to lie on the flank of a large mass of fine, greenish, quartzose rock, which crops out at the north end of Opazatica portage and on the small lake to the north. Over the height-of-land portage a more variegated example is seen. On the point on the east side of the little lake above, a more whitish variety crops out, while on the point at the north end of the lake a gabbro occurs, which also shows at the narrows to Island lake. Along the south and east shore of Island lake, the fine, greenish rock is overlain in places by conglomerate. In this vicinity, immediately inland from the water, the country rises into high hills: some of these were ascended and, in nearly every instance, showed the same sequence of rocks as exhibited on the Raven lake chain, namely, slate, quartzite and breccia-conglomerate. Just south of Labyrinth lake is a hill of 350 feet presenting the typical series. The Devil's Swinging hills, south and east of Island lake, show the conglomerate, but the quartzite is more extensively developed. The elevation is 760 feet above Island lake. The great height of-land ridge, with an elevation of 550 feet, stretches to the eastward and presents precisely the same series.

Chaminiss hill.

Just east of the provincial boundary, and a few miles south of Labyrinth lake, is a remarkable flat-topped hill, known to the Indians as Chaminiss. This hill is a very conspicuous object in the region, being visible from Lake Abitibi on the north and from Lake Temagami (information from Indians?) on the south. A special expedition was made to this hill, as it was hoped that its perpendicular sides would furnish an excellent section of these upper rocks. In this we were not disappointed as will be seen from the following notes:—

The total height of the mountain above Lake Present is 756 feet (aneroid). The lowest rock is a remarkably fine-grained slate-like substance, no doubt a fine mud or ash rock; it weathers whitish and soft, although fresh surfaces are hard and almost flint like in their nature (315 feet). This is followed by 135 feet of quartzite passing into grit. On the top of all are about 100 feet of breccia-conglomerate. We have therefore, a vertical section of 550 feet exhibiting the rock in the sequence to which we have already become accustomed. Close to Mount Chaminiss, towards the south-west, is a great ridge, some 600 feet high, which forms the divide between Raven lake and Lake Present; on its northerly side is a flanking hill of less elevation. Both these likewise show the same succession of rocks.

A magnificent view of the structure of the country and the topography of the region is obtained from this elevation. An account of this must be reserved for the final report.

Diorites.

The shores of Island lake, as well as those of Labyrinth lake and the lake to the east of Island lake, show the fine-grained greenish to bluish rock passing into diorites towards the north. In places, the greenish rock shows signs of fracturing and recementation (autoclastic). This rock is much like the lowest member of the Upper Huronian series, but it lacks the even bedding, is more injected with diorites, and shows spheroidal weathering in many places. Awaiting the examination of sections I am disposed to place it with the lower series.

South branch of white river.

The South Branch of the White River.— This stream enters the main river a short distance above the Abitibi branch. As far as the confluence of the south-west branch the stream flows between banks of stratified clay rising to considerable altitudes. The current is strong, and, in low water, difficult of navigation, owing to the presence of great numbers of "snags." Just above the mouth of the south-west branch, in Lot 10 Con. IV, Evanturel, a series of flat rapids, over limestone, occurs and continues as far as the line between Lots 10 and 11. This limestone is of Niagara age, and is not rich in fossils. Enough were collected, however, to permit of its identification. Subsequent work proved that the limestone is continuous with the mass forming Wabi point on Lake Timiskaming. Just above the limestone, exposures of a dark gray rock are seen. At the Clay falls, which immediately follow, these are seen to be mixed with basic eruptives. The portage is on the northerly side, is a mile and a quarter long, and shows an elevation of 225 feet above its foot. The actual fall in the river is 180 feet (aneroid). Gray schist and eruptives occur above, and the former is seen to be baked, at its contact, with the injected rock. All the way across the township of Dack, as far as the point where the river breaks out of Long lake, in Lot 10 Con. IV, the prevailing rocks are eruptives, presumably diabases, which are associated with dark gray as well as sericitic schists. Several falls and short portages occur on this stretch.

Long lake portage.

At the portage into Long lake very coarse diorite, passing into amphibolite, occurs. Along the lake as far as the turn in Lot 7 Con. III Robillard, the outcrops consist of diabases and diorites in various degrees of texture. The bend in the lake is occasioned by a great ridge of diabase following the westerly shore and extending a distance of about two miles westward. The rock approaches close to the shore in Lot 8 Con. II Robillard, where it forms precipitous cliffs. This

ridge continues to the north-west the full length of Long lake but is cut off by gneisses in the fifth concession of Truax. The gneiss is exposed on the narrows to the next lake above (Kenogami Jiging,) but is not seen again at the waters edge the full length of the chain of lakes, or on the river above, as far as travelled. Expeditions, both east and west, revealed nothing but gneisses, exposures of which were encountered at many points e. g. on the south half of Lot 4 Con. V Sharpe, on the north half of Lot 4 Con. IV Sharpe, on the north half of Lot 3 Con. IV Sharpe, on the south half of Lot 3 Con. V

Sandy soil.

Sharpe, and on the south half of Lot 1 Con. V Sharpe. No further rock is exposed for six miles westward. Towards the head of the last lake (Cushong) the soil, which has been excellent all along the river and lakes, begins to give place to sand, and, on entering Gross, heavy deposits of sand cover the country.

Council creek.

A canoe route leaves the White river a couple of miles above the head of Cushong. The first portage is upwards of two miles long, over sand plains, and several other long portages connect shallow muddy lakes, which finally bring us to a stream flowing into the Montreal river. The navigation of this creek is hard, almost impossible in low water, so that another long portage is necessary to reach the mouth of the creek near its confluence. This stream is known as Council creek and enters the Montreal river near Indian chute. On this route no rock, except gneiss, was seen. The soil is all sandy and the timber for the most part small. The portages are but little used and are difficult to find. In ten year's experience in northern Ontario I have never seen a region where moose are so plentiful as around the small lakes on this route. The muddy shores are so tramped in places as to resemble cattle yards.

Moose plentiful.

A strip of about ten miles in width to the south of the section afforded by this canoe route was not examined. The country here seems to be very rocky. Towards the eastern edge of this strip occasional outcrops of rocks were observed in the fine agricultural regions of Hudson, Henwood, Kearns, Beauchamp and Bryce. The exposures were for the most part gabbro, but a rock ressembling the upper series was seen associated with large boulders of undoubted conglomerate on Lots 5 and 10, in Con. VI of Beauchamp. Also, a coarse, gritty sandstone of some upper series (not necessarily the silver-bearing rocks) outcrops in hills of considerable height, with a good vertical exposure on Lot 5, Con. IV Henwood. That rocks of the upper series occur in this region is undoubted ; owing to reasons already stated, I was unable to further investigate them. The less easily accessible parts of Henwood, Bryce, Beauchamp and Cane are worthy of further

investigation. The present writer is confident that interesting rocks of a later age than the lower Huronian lie between the agricultural lands and the gabbro ridges to the west.

Ferruginous slates.

On Lot 3, Con. V Hudson, even-bedded ferruginous slates occur, on which mining claims have been located. These rocks continue westward as a ridge, until they reach a considerable elevation, with a fine vertical exposure on Lot 9 Con. III Hudson. Here they are cut off by gabbro which entirely surrounds Twin lakes in the south-west corner of the township. Gabbro also breaks through these slates towards the south and east of the place where they are first mentioned. The ferruginous slates probably form part of the slaty series of the upper Huronian, for very similar rocks were observed intimately associated with the common slate-like variety on the hills south of Windigo lake.

NORTH BRANCH OF THE BLANCHE RIVER ROUTE TO ROUND LAKE.

Round lake

The stream flowing from Round lake joins the main north branch just below the high falls at the sand hill portage. The current is not excessive, but the navigation is rather difficult on account of a number of small falls and rapids which necessitate portages. Round lake is a very beautiful sheet of water with picturesque sandy beaches, in sharp contrast to most of the lakes of the region. Gneissoid rocks occupy the south and west shores, while altered diorites and nearly vertical schists occur on the east side. The river above Round lake lies in a low area; its current is slight and its shores muddy. Excellent agricultural land is found in this region.

Kenogami lake.

On Kenogami lake the prevailing rocks are Lower Huronian schists with altered diorites, etc. Towards the eastern end are outcrops of conglomerate associated with slaty rocks comparable with the series at Cobalt lake. These may be regarded as outliers of the Upper Huronian series.

Boston township.

The township of Boston, lying to the east and north of Round lake, is becoming important on account of the discovery of the iron range rocks. Ferruginous members of the Lower Huronian series form a sort of crescent, crossing the township about the middle, with the horns pointing towards the two northern angles. Several outliers of the upper series are seen in different parts of the township.

On the iron range in Boston many claims have been located, and some also in the north-east corner of the township of Otto. A sample of ore from this locality is said to have yielded forty-five per cent iron.

At the point where Boston creek crosses the line between Boston and Otto, impure iron ore has been discovered.

Economic resources.

The occurrence of nickel, cobalt and silver has already been as fully dealt with as the nature of this report requires. Copper also occurs in many parts of the region, both in the vicinity of the mines at Cobalt lake and at various points along the north branch in the townships of Catharine and Marter. The most important show of copper pyrites is at the Jean Petit mine, already described. On Beaver House lake also, copper pyrites in quartz has been discovered in several places. None of the shows are promising. From the wide dissemination of copper there is a reasonable hope that a workable deposit may yet be discovered.

Good gold prospects.

As far as I am aware no gold excitement has ever disturbed the calm of this particular region ; nevertheless, quartz veins carrying gold were located during the summer along the string of lakes stretching from Windigo lake to Raven lake. As already stated, the upper rocks occupy the south shores of all these little lakes, but the northern shores are only in part covered by typical clastics of the upper series. Diorites and other rocks disturb the even-bedded clastics along the northern shores. Many quartz veins intersect the whole assemblage, and traces of gold were found in several samples. I consider this region well worth prospecting for gold. The same remark is true of the high hills along the north branch of the Blanche in the township of Catharine.

The iron range rocks in Boston and on Malone lake may yet yield mines of importance, but their productiveness is not yet proved.

Timber.

The pine has been cut over practically the whole of the territory examined, but spruce, balsam, birch and poplar still remain. As elsewhere in northern Ontario, forest fires have destroyed extensive areas. Particularly may be mentioned the region immediately around the mouth of the Blanche, the sand plains around Lake Cushong stretching almost to the Montreal river, and portions of the territory north of the south branch of the Blanche.

Besides the common trees of northern Ontario already enumerated, some species are met with expressive of the fact that we are here on the border land of the hard-wood belt. A grove of maple is seen near the mouth of the Blanche, and American elm is met with, in patches, over nearly the whole region. Black ash, also, is a common tree along many of the rivers.

Numerous excellent water powers exist on the different branches of the Blanche. At Sand hill portage on the north branch, a vertical fall of about thirty feet affords an excellent location for a generating plant- Some of the waterfalls on the South branch have been recently examined by Mr. W. J. Blair, O.L.S., who has kindly communicated his results to me.

Falls at Dack.

At average low water the high falls near the border of Dack and Evanturel are estimated to be able to yield 2000 horse power. In this fall are three cascades of $55\frac{1}{2}$, 38 and 28 feet respectively. This makes a fall of $121\frac{1}{2}$ feet. The elevation recorded by aneroid was 180 feet. Part of this difference is accounted for by the rapids between the cascades, but the aneroid reading is probably somewhat too high.

Sunday creek falls.

The falls below Sunday creek, on Lot 7 Con. IV Dack are estimated to be able to furnish 450 horse power continuously.

Agriculture.

In the light of recent developments it is impossible to close this report without some comment on the agricultural possibilities of the region. A great mantle of evenly stratified clay overlies a large portion of the region examined, but it by no means covers all the townships surveyed. Making allowance for sand plains and outcrops of rock, the general boundaries of the clay land, as far as Ontario is concerned, are roughly as follows:—West of a line drawn from the north-east corner of Brethour to the north-east corner of Otto, and east of a line from Kenogami lake to the head of Lake Cushong and thence to the south-east corner of the township of Bucke. The soil is a fine white clay devoid of stones, but lacking in vegetable mould. Farmers working in the section inform me that the best results from such land can be expected only after the soil has been well worked for several years. While some good crops were observed, especially of peas and clover, the writer was much disappointed in the appearance of many of the fields examined. The best results seem to be obtained where the more extensive clearing is done and there can be little doubt that, when the region is all cleared, conditions will set in which cannot fail to result happily for the cause of agriculture.

Raised Shorelines along the Blue Mountain Escarpment.

By Mr. A. F. Hunter.

Introduction.

On October 25, I began the work of tracing the ancient high level shorelines along the flanks of the Blue mountain escarpment, south of Georgian bay, and continued the investigation as long as the weather

permitted. During the time I was thus employed I traversed the district from Orangeville northward to Thornbury.

Transverse valleys.

The straight course of the escarpment, extending about N.W. by N. from the head of the Nottawasaga valley for many miles up the Bruce peninsula, is one of its most noteworthy features. Its face, however, is not perfectly straight. At nearly regular intervals, there are transverse valleys, some of them as much as ten miles deep, set into its face, not at right angles to the course of the escarpment as one might expect, but at an angle of about sixty degrees. This phemenom presents no difficulty, as, on inspection, the projecting ridges dividing the transverse valleys are seen to have the N.E. by N. direction of the primary rock ridges commonly observed over the easterly or Laurentian parts of Canada. Accordingly, the so-called escarpment is really a series of niches into the edge of the Niagara limestone and the underlying formations which form the tableland of western Ontario. In each of these transverse valleys the springs and rainfal] form a considerable stream. The rivers thus formed, in the district I examined (proceeding southward from Georgian bay), are as follows; Silver creek, Pretty and Batteau rivers, with the several arms of the Nottawasaga, namely: Noisy, Mad, Pine, Boyne, Twenty-Four and Nottawasaga (main branch) rivers, and finally the Humber river.

Erosion.

Throughout these valleys there are well developed terraces or benches from which it is evident the valleys are not the work of erosion in recent geological times. Erosion only of the loose materials of the terraces has taken place in recent times; and even this is not general, but may be seen only where the conditions for erosion are favourable. As the terraces from the lake shore pass uninterruptedly to every transverse valley without change in character, the latter were evidently bays in the period of submergence. The shape of the rocky face has therefore changed but little, remaining substantially the same as before the submergence. The surface features of the district are entirely due to denudation and subsequent erosion of the loose materials, not to glacial action, the terraces referred to and shorelines having been formed since the so-called glacial period.

Shore cuttings.

Shore cuttings are to be seen here and there, at every thirty or forty feet of altitude; but there are a few broad terraces more conspicuous, than the others and evidently denoting distinct epochs. Each of these broad terraces represents a period of strong activity, or one of stationary condition of the surface of the water body, or perhaps both.

Algonquin shoreline.

For the greater part of the distance under consideration, the Algonquin shoreline forms the base of the rising ground. A mile west of Kirkville it becomes substantially the base of the mountain or precipitous edge of the tableland, which here approaches closely to Georgian bay. In the territory examined, I found the altitude of the Algonquin varied considerably. Near Craigleith, it is 790 feet; near Stayner, 765 feet; and at Beeton, near the head of the Nottawasaga valley, about 740 feet. Its deformation is therefore considerable, the dip to the south-east being as much as two feet per mile in some places. Along the easterly side of the Nottawasaga, it dips at the same rate towards the south-west. That is to say, its deformation is similar on the two sides of the valley, viz., a dip into the valley from the height in front of the main basin of the Georgian bay. From this circumstance I conclude that the deformation of the Algonquin shoreline in the valley is a local phenomenon, and not the result of any general earth movement, but an effect of sagging or collapse of the loose materials of drift toward the head of the valley. In those parts, we know, from operations connected with the sinking of artesian wells, that the drift deposits are about 350 feet thick. Our conclusion as to the cause of the deformation of the shoreline is further confirmed by the fact that the strong, high terrace at 1,430 feet along the rocky shelves of the escarpment, where the drift deposits are comparatively shallow, is substantially horizontal, without uplift or subsidence of any appreciable amount.

Second shoreline.

The next shoreline above the Algonquin, worthy of attention is one about 180 feet higher. Its deformation, as one proceeds up the valley, is equal to, or perhaps a little greater than, that of the Algonquin itself.

Third shoreline.

The next important terrace in ascending order is about 300 feet higher than the Algonquin, and its deformation does not seem to differ much from that of the two below it, although it has some irregularities of altitude of a local character that are sometimes puzzling. Notwithstanding this peculiarity, it is a strong terrace, and entitled to rank with the strongest. If deformation of shorelines be a phenomenon peculiar to the loose materials of drift, and be greatest where the drift deposits are deepest and most loose, i.e. have most sand and gravel in their composition, then some of the irregularities possessed by this terrace may bear explanation.

The three shorelines just named are doubtless the three which Dr. Chalmers traced across south-west Ontario in 1902.* They represent,

*Geol. Surv. of Can. Summary Report 1902, pp. 272-274.

those in the basin of Georgian bay, the same three periods of greater activity, or longer stability of the water surface.

A large terrace.

Above these three terraces there are several others of equal or even greater strength, occurring regularly along the escarpment. But there is one of the high terraces that has exerted more influence than any other in the formation of the physical features of the surface. Its altitude is about 1430 feet above sea level, and it is substantially horizontal throughout the district examined. There are some strong terraces above as well as below it, with high marginal cliffs, and with very similar geographical positions. But I have traced the one in question, as it is the strongest of the high continuous shorelines and has a considerable range through the district. It is, indeed, a broad terrace, rather than a shoreline, having in some places the stupendous width of a mile or more, measured from its cliffs.

Niagara formation.

In many places, the 1430 foot shoreline, throughout its entire length along the escarpment, has high rocky cliffs of Niagara limestone, at whose bases the old waterline is to be seen. With this shoreline there is more denudation of the primary rocks than with the other shorelines, the most frequent exposures being rugged cliffs of the Niagara formation, which Dr. Bell traced throughout this district in 1859. All the way along the escarpment. this shoreline and the Niagara formation are singularly coincident in altitude and position, through there are a few differences ; and it is almost entirely owing to the operations of the water body when at this height that there are so many good exposures of that formation.

Average height.

The mean of a number of observations, carefully made in favourable circumstances, at different times and places, was 1430 feet above sea level. I have been unable to find any deviation of the shoreline from the horizontal, i.e. it has no observable uplift or deformation of any kind. This fact is significant when we consider that it rests close to the primary rocks, without much drift material underneath it. Where the lower shorelines rest upon thick deposits of loose materials (300 feet thick or more) there is most deformation, especially where they pass toward the head of the ancient Georgian bay.

Width.

The foregoing shorelines have a width of two townships opposite Orangeville, and converge into one precipice within half a mile of each other at Craigleith. Here all the intervening shorelines close in upon each other at this abrupt and picturesque part of the escarpment, but the mountain slope is too steep to preserve many traces of the minor shorelines between the broader terraces.

Minerals of the Ottawa Valley.

By Mr. C. W. Willimott.

Introduction. In the early part of the year I was engaged in making various experiments in connection with my report on pigments, which will soon be published. I also made up a number of collections of minerals and rocks, which have been forwarded to various schools, the names of which will be found in Dr. Hoffmann's report. Much of my time is necessarily taken up by persons bringing in minerals for identification: generally, however, the physical attributes of these specimens are sufficiently pronounced to prove their identity without the aid of chemical agents.

Later in the summer, I visited several places in Ontario and Quebec and secured many interesting minerals as well as a quantity of other materials for making up collections. A report of these minerals, together with a description of almost every other mineral found in Nova Scotia, Quebec and Ontario, is being prepared for the press. There are, however, three minerals to which, on account of their economic importance—an importance as yet scarcely appreciated by the people of Canada—I desire to call immediate attention.

Lepidolite.

Lepidolite. The only occurrence of this mineral in Canada is, so far as I am aware, on lot 25 range 7, township of Wakefield, Quebec, where it occurs in a large pegmatite vein, holding grayish orthoclase and albite, white transparent to translucent quartz, large cleavable masses of a light green amazon stone, crystals of black and green tourmaline, pale purplish fluorite in rounded cubes and octahedrons and specks of wraminite and gummite. Masses of black and smoky quartz, sometimes penetrated by long black crystals of tourmaline, are associated in this vein.

About twenty years ago this mineral, having been mistaken for muscovite, was mined to a small extent. About a ton was taken out in cleavages sometimes two feet across and over six inches thick, of a light copper colour. A few fair-sized plates were cut from these masses, and thin cleavages were perfectly transparent and resembled muscovite.

Salts of lithia. The fusibility of this mica naturally precludes its use as a refractory mineral, but owing to the large percentage of lithia it contains its economic importance deserves the attention of dealers in this salt. Dr. Hoffmann found it to contain over five per cent.

SERPENTINE.

Serpentine.

The translucent or noble serpentine, which is confined to the Laurentian rocks, has a very wide range in the Dominion. It is usually found in association with the crystalline limestones or dolomites or enclosed in the latter, in specks, patches and veins, constituting at times handsomes marbles.

This serpentine must not be confounded with the dark green or gray variety of the Cambrian rocks of the Easterns Townships, although this latter would also contribute excellent material for ornamental use. At the village of Old Chelsea, on lot 14 range 8, township of Hull, probably overlying a crystalline limestone, is a serpentinous marble of a noticeable width. It can be traced along the strike into the next lot, in a series of hillocks. The serpentine, which occurs in patches and veins, in somewhat weathered on the surface, but assumes tints of various shades of green, at a short depth. If this stone were opened up, it might afford some handsome marbles, and being situated on the main road, little more than a mile from the Chelsea station, its transport would be reasonably cheap. There is a brook running through the property that could supply all the power necessary for sawing the stone.

Crysotile.

On lot 20 range 1 township of Wakefield, there is a small exposure of very much weathered serpentine-limestone. The serpentine is distributed throughout the limestone in spots and patches, often to such an extent as to make up a large proportion of the mass. Small veins of an inseparable chrysotile sometimes intersect.

On lot 30 range 4 of the same township a large amount of stripping has been done for chrysotile where some promising veins appeared on the surface. The serpentine has been uncovered at intervals over an area of about forty-six acres. In some places it has been penetrated about three feet, showing the continuance of small veins of chrysotile. A very large proportion, however, is free from these veins. Blocks of a fair size occur, ranging through shades of green. Yellow and brown blocks were also seen and were quite translucent. Possibly blocks of a very large size might be obtained, but the distance from a shipping point must necessarily detract from their value.

At one place the serpentine is associated with a white crystalline dolomite. At another place large patches of pink calcite rarely enclosing apatite crystals were embedded in the serpentine.

In the township of Denholm this mineral is met with on several lots, intersected with small veins of chrysotile. On lot 42 range 1 a mill was erected some years ago for grinding the serpentine that contained the small veins of chrysotile, for making asbestic, (an improved plaster.)

As an ornamental stone it could not be very well recommended, being seldom free from small veins of chrysotile. On lot 27 range 2 township of Cawood, a small exposure of serpentine occurs intersected by a vein of chrysotile, the fibre of which was about three quarters of an inch in length.

FUCHSITE.

Fuchsite. This mineral occurs in small scales of a light emerald green colour, slightly translucent, and, with magnesite or dolomite, forms schistose rocks found in several places in the townships of Bolton and Sutton, in the province of Quebec. A specimen of this mineral, cut and polished, revealed a wavy structure of a light and dark emerald, the two tints generally alternating in broken lines and patches, enclosing spots of a brownish material, together with other minute specks of a brass yellow. Mr. G. F. Kunz in his pamphlet, in 1903, on the production of precious stones, writes, on page 44—"Among the "various green minerals used by the ancients for decorative purposes, "compact fuchsite must now be included. An interesting account is "given by Prof. H. A. Miers of London of a fragment of a Roman "statuette composed of this mineral. It was found in the Oxford "collection, but with no record of its source. The specimen is three "inches long, and represents the thigh of a human figure from hip to "knee. It is well executed, and is referred by archæologists to the 'best period of Roman work. The piece is bored at both ends as "though the figure was made of portions fastened together, thus sug-"gesting that the material was scarce and not to be had in large pieces.

"The stone is of an emerald green colour, translucent and beauti-"fully polished; it is not uniform in tint, having clouds or patches of "a deeper green, and also of brown. There are bright internal reflec-"tions, resembling flawed emerald; but the fractured surface shows "the textures of a compact micaceous mineral consisting of minute "flakes or plates."

The resemblance between the mineral from which the statuette was made and the fuchsite schists found in Canada is most interesting, and although this substance does not take such a high polish as that

described by Prof. Miers owing to the slight admixture of magnesite or dolomite, it nevertheless presents a fairly good gloss, and is quite compact and readily commends itself as a unique ornamental stone.

This chromiforous mica-schist is found associated with beds of magnesite and dolomite which are often of several inches in thickness, and which constitute the upper portions of the beds. Sometimes it is dispersed in scales throughout the entire bed, lending its emerald green colour to the whole mass.

Geology of Part of the County of Ottawa.

By Professor Ernest Haycock.

Introduction.

On July 20 I received instructions from Dr. Bell to proceed with the work of filling in the geology of the "Mining and Topographical map of the Lièvre River and Templeton Phosphate District," and on the 26th began a careful study and detailed mapping of the rocks at the southern margin of the sheet in the vicinity of Perkins. This work was continued during the next two months, and includes the following areas:—

Templeton Township, ranges 8 to 13.

Wakefield Township, ranges 3 to 7. Templeton gore.

Portland Township (West), ranges 1 and 2, as far east as Lakes McFee, Dodge and Newton.

Complicated rock outcrops.

In spite of this concentration of attention, the rocks are so intricately mixed, the exposures so frequent, their structure so complex and composition so variable, that the portions most closely studied were not exhausted, nor does the most detailed mapping fully reveal the variety and relative abundance of the various rock types.

GENERAL PRINCIPLES.

Laurentian rocks.

The great area of crystalline rocks forming the Laurentian Highlands of Canada, of which this map-sheet forms a part, has been studied ever since the inception of the Survey. It has occupied for years the attention of the most acute and skilful geologists the Survey has known. A vast amount of literature is in existence concerning it, and the name Laurentian has become of world-wide significance among geologists. In entering upon the study of such a region the geologist is treading upon hallowed ground, and he would be sanguine indeed who would hope to gain, in a period of two months, more than a small acquaintance with this vast assemblage of the oldest known rocks.

The work assigned was, however, apparently simple. It consisted of locating upon the above mentioned map, which is on a scale of 40 chains to the inch, the various rocks found, and their geographical distribution. In the field, the rocks proved so variable in mineral composition, and their distribution so irregular, that an almost infinite amount of time and patience would have been required to fully describe and map every occurrence within even a square mile. The large scale of the map, and the numerous exposures, necessitated the examination of every prominent outcrop. To connect outcrops of similar rocks a half mile apart—one inch on the map—was not consistent with accuracy, as repeated lists proved. Some intervening outcrop would, in the majority of cases, at least during the earlier weeks of field work, reveal some totally different type of rock. In referring to these rocks, Sir William Logan says, 'The dips avail but little in tracing out the structure: for in the numerous folds of the series the dips are frequently overturned, and the only reliable mode of pursuing the investigation is patiently and continuously to follow the outcrop of each important mass in all its windings as far as it can be traced until it becomes covered up by superior unconformable strata, is cut off by dislocation, or disappears by thinning out.'* Such being the case the diffirentiation and establishment of types of rock sufficiently abundant to justify a separate colour in mapping, the determination of their approximate mineral composition, and ascertaining their structural relations to one another consumed much time and demanded a scheme of colours often tentative and always elastic.

Difficulties of accurate mapping.

Mr. White had already coloured on the map those rocks bordering the lake-margins and islands. These margins and lakes lies in the most disturbed portions. To bring all the areas into harmony with a new colour-scheme, it was found necessary not only to travel over the ground already studied but to trace the intervening stretches of wooded wilderness.

At the end of the season, nine separate and easily distinguishable types of rock were located; it was attempted to locate two or three more, but the complexity of the rock occurrences caused the attempt to be abandoned. The main facts of composition, structure and distribution, and the theory at present held as regards the origin and inter-relations of the nine rocks located, are as follows:—

Nine types of rock.

1. Banded (bedded), usually fine-grained, gray or dark-coloured, thoroughly crystalline hornblendic or biotic rocks with schistose foliation, and ranging from typical gneiss to mica or hornblende schist.

Hornblendic or biotic rocks.

* Geology of Canada, 1863, p. 43.

Strike and dip almost always discernable, often variable in small areas, though fairly persistent on the average. Twisting and contortion usually not extreme, often absent, and bedding distinct. Occasionally, as at the south end of Newton lake, the bedding is so little obscured that their sedimentary origin cannot be doubted. These rocks have continuity on a large scale, though much broken and interrupted by various intrusives. They are usually associated with, or interbedded with, quartzites and garnetiferous gneisses and together with these occupy by far the greater area of the country examined.

Quartzites.

2. Bands, beds, or masses of white or light gray rock, almost wholly of quartz, but containing variable minor quantities of reddish feldspar, mica, hornblende, or other minerals. Foliation obscure or absent. This rock occurs in interbedded sheets among the gray gneisses, less conspicuously among the garnetiferous gneisses, or forms considerable masses of the country rock, and is thin, white and very finely granular, almost saccharoidal, as at the south end of Clear lake. Its composition is that of altered sandstone of varying purity, and its distinctly interbedded character is indicative of a sedimentary origin. This rock is widely distributed, and is quite prominent in the belt of rocks running north-easterly from McGregor lake past Battle and Rheaume lakes. It is often abundant near the limestones, but its relation to them is not clear.

Garnetiferou gneiss.

3. Bands or beds of gray to reddish crystalline rock with garnets, pale red feldspar, quartz and various silicates in minor volume. They are foliated and would usually pass for garnet gneiss. They merge into the bedded fine-grained gray gneiss, are not usually more contorted than, and frequently alternate with, beds of the latter. Structurally they have the same characteristics as the gray gneiss and have the same origin. They are typically developed in the hills just west of Perkins, are variously distributed in the belt extending north-easterly to Battle lake, and are prominent along Grand and McArthur lakes.

Sedimentary origin of the banded gneisses and quartzites.

These three rock types, in many cases, without doubt, are mineralogically differing beds of the same series of altered sedimentary rocks; where least disturbed, their interbedding is exactly what we find in Palæozoic strata, though the fragmental shapes of the component grains have been completely obliterated, and the mineral matter entirely rearranged and recrystallized. This recrystallization has taken place without intermingling of the chemical constituents of contiguous strata, to an extent sufficient to obliterate the evidence of original stratification. There seems no other possible interpretation of the conspicuous banding almost everywhere observable.

4. Coarsely crystalline limestone, usually white or light gray with large portions serpentinized. It contains numerous accessory minerals as asbestus, apatite pyroxine, feldspar, graphite, and include coarsely crystalline masses which are largely white orthoclase, but contain many other minerals. Within the area of the sheet, these rocks are usually massive in structure, only occasionally showing thin, siliceous partings that may represent originally alternating beds of different composition. These are usually grotesquely twisted and contorted, or broken into disjointed fragments. The angular boulders of rusty weathering quartz-ite, often found freely sprinkled through the masses, may have come from such broken layers. Limestones.

These rocks are very irregularly developed, widening out and showing numerous outcrops for a short distance and then disappearing, their place being taken by the banded gneisses or intrusives. When mapped, the outcrops show some linear distribution, and this may indicate original continuity subsequently destroyed by the crushing from associated heavily bedded and more resistant banded gneisses and quartzites, and intrusive masses. They are regarded as of sedimentary origin.

The structural relations of these limestones to the other sedimentary rocks among which they occur are not cleared up as yet. They are all so disturbed and broken by intrusives that their relations are not very easily interpreted even when contacts with the quartzites and banded gneisses are exposed. About Perkins, where they were most carefully studied, their distribution, and their relation to the under-lying rocks, as revealed along the Blanche river, were easily explainable upon the hypothesis of their unconformable superposition and subse-quent infolding with the gneiss and quartzite, the whole then being disturbed by the acid intrusives. About McGregor lake no clearly contradictory evidence was seen, and the contacts and distribution appeared to be in accordance with this view. About Grand lake the evidence was in favour of interstratification with the gneisses and quartzites, and subsequent observations in other localities were not wholly favourable to either view.

The limestones are certainly associated closely with the banded rocks, more especially with the quartzite, and its occurrence in volume came to be a signal for the occurrence of a limestone mass. On the other hand they lack the continuous development to be expected if they were interstratified. It may be that they are pinched out by pressure and by instrusive masses, but limestones are usually more persistent than the other sedimentary rocks, and in this field uneven-

ness in original deposition appears the most natural way to account for the erratic distribution.

Pyroxene rocks.

5. Light gray or greenish, granular masses of rock, mainly pyroxene, but often with a considerable volume of disseminated calcite. They often occur in the line of trend of the limestones and are so associated with them, and in composition they sometimes so approach each other in intermediate varieties, as often to suggest a similar origin, the present differences being merely due to original differences in composition. They are well developed near the shores of both McGregor and Grand lakes. They have as much continuity as the limestones, though thought to be less in volume, and may be traced in a broken way for considerable distances in line with the general trend of the altered sedimentary rocks.

Other pyroxene rocks occur, namely dark-coloured, or augitic, which are more irregular in distribution, and doubtless of intrusive ingeous origin. They are most intimately connected with the deposits of mica and apatite.

Massive gneiss.

6. Massive, light gray, reddish or pinkish crystalline rock, largely composed of dull red or pinkish orthoclase, with quartz, hornblende, etc., in varying proportions, but relatively of minor importance in the rock. Texture usually granitic with gneissic foliation, not banded, but sometimes showing a heavy bedding not characterized, as in the banded gneiss, by marked difference in mineral composition. Southwest of Wakefield lake interbanding of rock of similar composition with layers rich in hornblende and of a dark colour, was noted, but this feature was not common in the Templeton areas. Distribution irregular, forming considerable masses among the banded gneiss, as in the hills along the north side of McGregor lake, and extensions northeast and north-west, forming a rough and broken V-shaped area. They are regarded as of igneous origin, but whether older or newer than the surrounding rocks, or of contemporaneous origin, was not determined.

Hornblendic gneiss.

7. Usually a gray or dark gray coarsely crystalline rock, composed mainly of a gray feldspar and abundant hornblende. Quartz usually present. In mineral composition apparently simple and uniform. Massive with gneissic foliation, a heavy bedding sometimes descernable as in the previous group, with which it corresponds in structural characteristics. It is not very different in mineral composition except in the absence of the pink feldspars and relatively more abundant hornblende. A comparatively large area lies between Grand and Wakefield lakes, extending to beyond the boundary of the sheet. Similar

rock occurs south of McFee lake. Near the northern township line of Templeton, the two kinds of massive gneiss are considerably intermixed. It is regarded as of igneous origin, but its relations to the other groups were not clearly made out.

8. Very coarse red orthoclase and quartz rocks. These minerals occur, usually, in nearly pure aggregates up to a foot or more in diameter. Other minerals absent or in very small quantities, though large aggregates of hornblende sometimes occur. The orthoclase is usually bright red in colour and contains sharp crystals of quartz as inclusions, forming a typical pegmatite. Graphitic granite not uncommon. This rock is widely and quite uniformly distributed throughout the district, and also crops out near East Templeton station where large pits have been opened in it for the feldspar it contains. It is intricately disseminated in masses of varying volume and shape through all the rocks previously described. This volume, with relation to that of the rock cut by it, is variable, but is estimated roughly to be from one to two thirds the total volume in the belt of banded gneisses and quartzites north-east of McGregor lake. This rocks shows no foliation, and is newer than all the preceding groups. It appears to be more abundant in the localities rich in mica and phosphate, and to have had a real connection with the concentration of those substances into deposits of economic importance. Pegmatite.

A few somewhat larger masses, essentially the same in composition, but of granitic texture, though not true granites, were observed, the largest lying between the south-east and north-west arms of Wakefield lake. These have the same relations to the surrounding rocks as the pegmatites.

Dark coloured basic rocks, of variable texture, but usually fine-grained and compact, individual minerals indistinct, designated for field purposes as trap, or greenstone. This rock occurs in dikes, usually vertical, and one or two chains in width, generally lying in an east and west direction, cutting all previously mentioned rocks, and remarkably persistent in width and direction. Several of these cross the south-western corner of the sheet at intervals of about a mile. Trap or greenstone.

East of Grand lake, between Green lake and Dam lake, a huge boss of a more coarsely crystalline rock of approximately similar composition, comes in and trends north-easterly with the prevailing strike of the rocks to the south-east. It was traced as far as Newton's lake, but its limit in that direction was not reached. It is regarded as a

relatively later intrusive, and no pegmatite was observed within its boundaries.

Economic minerals.

The deposits of apatite and mica have been studied for many years, and their relations appear to be pretty well understood. Very little attention was therefore given to them, but sufficient to gain the conviction that many, at least, are in true fissure veins, and not igneous intrusives. Most of the old abandoned pits were already located on the map, and those now working are in the same localities. These deposits occur in the series of banded rocks and limestones regarded as altered sediments. The main volume of these rocks trends in a north-easterly direction diagonally across the sheet. An arm branches off in a northerly direction along Grand lake and divides, sending branches north-westerly along McArthur lake, and east and north-east along Green lake to Dodge lake.

Surface deposits.

Surface deposits in this district are scanty and confined to the valley bottoms near the Blanche river and its tributaries. These deposits are usually gray clays, free from boulders, and often stratified. Glaciated boulders and erratics are rare, but the bedrock is generally glaciated; north-facing hills and knobs show characteristically rounded contours. The striae trend southwards, modified locally by the directions of the valleys.

Physiographically the country is a tumbled confusion of steep wooded hills of no great elevation. The massive, gneissic rocks, and basic intrusives furnish a surface particularly rough, broken and difficult to traverse. The forest fires of the previous season swept great patches of woods out of existence, and the partly burned and fallen timber, interwoven with a summer's growth of vines and blackberry bushes, rendered travelling exceedingly slow and laborious.

Lakes.

Lakes are thickly sprinkled among these hills. The largest, consisting of McGregor, Grand, Green, McArthur and Wakefield, form with short portages, a waterway from Perkins to the northern boundary of the sheet. From Green lake, by way of the Mountain portage to Dodge lake and the Lièvre river, the pioneers in the early days brought in their supplies and even took out grain to the mills on the Lièvre to be turned into flour, but the wilderness ways are now deserted except by the stray sportsman, or a joyous party of student priests who have rest-houses through the region and travel back and forth in birch bark canoes in true voyageur fashion.

Lake basins due to erosion.

Almost without an exception the lakes, large or small, lie in areas characterized by the occurrence of limestone. In the hilly tracts

between the lakes this rock is as generally absent. Their origin thus appears due, in the main, to the removal of these less resistant rocks by the slow process of subaerial erosion. They have clearly not been dammed by glacial debris, as rock hills generally surround them, and their outlets flow over the solid ledges. Neither are they due, in any special way, to glacial erosion, though ice action has doubtless played its part in bringing about the final result. They are not trough-like, but notably irregular in form, conforming only to the trend of the more or less calcareous rocks among which they lie. Some are credited with considerable depth; Battle and McGregor lakes are said to have from 300 to 500 feet of water in certain places. With their pleasing scenery and opportunities for camping, canoeing, and fishing, they offer, at the present time, the chief attraction of the country for the outside world.

Mining prospects.

Although at present the mining industry in the district is very quiet, the deposits of merchantable mica do not appear in any way exhausted. Even the old pits formerly worked for phosphate, when cleaned out, as some have recently been at Battle lake, give very promising shows, and new ones are still being discovered. One such find, about three-fourths of a mile east of Dam lake, in the Gore, was opened during the summer, and was showing very large crystals of excellent mica. When last visited, buildings were being erected, and other preparations made for its vigorous development, There seems no reason to doubt that, with a regular demand for the product, these rocks will continue to yield steadily for an indefinite time.

Geology of Part of the County of Ottawa.

By J. F. E. Johnston.

Introduction.

In accordance with Dr. Bell's instructions I left Ottawa on the 8th of August and proceeded to make a geological examination of the area contained within the limits of Sheet No. 2. of Mr. James White's "Mining and Topographical Map of the Lievre River and Templeton Phosphate District."

Description of area examined.

This is the more northerly of the two sheets composing the map, and includes nearly the whole of the townships of East and West Portland, together with portions of the townships of Wakefield, Denholm, Bowman, Villeneuve and Derry. The area is divided into two nearly equal portions by the Lievre river, which flows in a general south-easterly direction.

Owing to the fact that the map has been compiled on a very large scale (half a mile to the inch), and that very detailed work is, therefore, required to properly show the geology, which is of a most intricate nature, the work done during the past season must be considered as only preliminary, and at least one more season will have to be spent in an examination of this area.

An extensive forest fire swept over a large part of this section of country in the spring of 1903, and, during the summer, the area thus burned was overgrown with weeds, wiry berry-bushes and other shrubs, which rendered hill climbing very difficult.

As the examination on which the present report is based was begun very late in the season, only a comparatively short time was spent in the field, thus militating against much progress being made.

However, the ground was fairly well covered in a general way, and a reconnaissance was made of the whole district comprised in the map-sheet, and a good idea of the character of the underlying rocks was thus obtained. A large number of hand-specimens were brought back for purposes of close study during the winter, with a view to obtaining much more detailed knowledge of their mineralogical composition.

Topography.

The country included in this map-sheet lies within the Laurentide hills, and is generally rough and mountainous; the valleys between the different ridges are covered with clay and sand. The hills rise to a height of about 700 feet, and are generally timbered, except where fire-swept. To the east of the Lievre river the flats are nearly all clay, but in the vicinity of Poltimore the land is much more sandy. In many places along Priest creek, on the western portion of the sheet, the line of demarkation between the overlying sand and the clay was found to vary from about three to ten feet from the surface.

There are no large lakes within the area, excepting Wakefield, of which a portion of the northern end, about two miles in length, extends within the sheet. There are a number of small lakes, the largest of which seldom exceed three-quarters of a mile in length, and there are two large creeks, Priest creek in the western, and Clay creek in the eastern, portion of the sheet. The former flows in a south-easterly direction, joining the Lievre on lot 12 con. IV of East Portland, near the line between cons. III and IV. Clay creek flows in a southerly direction, and joins the Lievre river on lot 11 con. IV of the same township, near the line between lots 11 and 12 and less than a mile above Priest creek.

Tamo lake was formerly about three miles and a half in length and, in places, over half a mile wide, but a small landslide, caused by the breaking of a mill-dam and the consequent rush of water, almost completely emptied this large body of water in the short space of three hours and a half. The lake to-day consists merely of a small pond, at the extreme upper end of the old lake, about 15 chains in length and 10 in width. Tamo lake.

A bay on Tamo lake extended to within about 10 chains of Muskrat lake, from which it was separated by a bank of clay about 10 chain in width, through which a small brook formed an outlet from Tamo lake to Muskrat lake. A saw-mill and dam were built here, and it was the breaking of this dam that caused the above mentioned occurrence. The intervening clay was swept into Muskrat lake, the upper portion of which, for a distance of 15 chains, is filled up. The evidence as to the date of this occurrence is conflicting, but the best informed settlers name April 22nd, 1896. The bed of Tamo lake is now traversed by roads, and parts of it are under cultivation, while a cheese factory has been built on what was the centre of the old lake.

The roads traversing the area included within the sheet have been considerably changed in places since the map was compiled some years ago. Owing to the complete cessation of development in the phosphate industry of late years, nearly all the old mine-roads have fallen into disuse and are now covered with growth, and blocked with fallen timber. New roads have been built and portions of some of the old ones altered. During the summer the necessary surveys to indicate the roads as they now exist, were made. Changes in the roads.

All the rocks, within the area examined, belong to the Grenville series, or Upper Laurentian system, and consist principally of granitic, very quartzose, micaceous, rusty and syenitic gneisses, crystalline limestone, quartzites, feldspar rocks, pyroxenites, mica, apatite and small areas of diabase and of mica-diorites.

There is comparatively little limestone in the country east of the Lièvre river, but in the western portion of the area, limestone outcrops are much more extensive. Principal rocks.

Rocks east of the Lièvre river.

Notre Dame de Salette is a small village on the east bank of the river, and, about the centre of the sheet above this, on the road to Villeneuve, the hill-ridges extend in places to within a few chains Rocks north of Salette.

of the river bank, while in others they are distant from it from a half to three-quarters of a mile. West of the road, in the N.W. corner of West Portland, there is a ridge of a reddish-gray, granitic gneiss striking approximately S. 12° E.,* and a quarter of a mile south of this, on the east side, the gneiss is more banded, and strikes about S. 13° W. On lot 6 con. VIII the rock is principally quartz and feldspar, striking S. 3° W. On lot 6 con. VI the ridge is just alongside the road, on the east, and here there is a massive bluff of a smooth worn, much weathered rock, very rusty near the surface and consisting principally of quartz and feldspar.

Just east of Salette, and north of the R. C. Church, there is a hill consisting mainly of a rock made up of a bluish-purple quartz and plagioclase, with very little mica and holding small inclusions of altered pyroxene. This rock is met with in many localities in the area examined. Associated with it here are pyroxenite, apatite and syenite-gneiss (leopard rock). West of the cemetery there is a small hill of the same bluish-purple quartz with the plagioclases very abundant, and between this hill and the river is seen a small exposure of crystalline limestone. On lot 3 just south of this there is a small outcrop of gneiss striking S. 3° W.

South of Clay creek on lot II con. IV crystalline limestone is exposed on the west side of the road. It occupies a very small area and is coarsely granular with minute particles of graphite, in the form of flake, disseminated through it. It contains numerous inclusions of rusty gneiss, in pieces of varying sizes up to a couple of feet in length, and intersected by pegmatite veins.

Rocks south of Salette.

North of the line between cons. III and IV the road, which has been running over flats from the church at Salette, strike the base of a range of hills, and the rock here is a micaceous gneiss associated with the plagioclase purplish-quartz rock, before mentioned. On the west side of the road, opposite the mouth of Priest creek, micaceous gneiss and quartzite outcrop, striking S. 8° W. and dipping easterly at about 45°. From here to the line between cons. II and III, the road is very rough and hilly, and on both sides of the line, east of the road, the ridge is composed of the plagioclase-quartz rock, associated with fine-grain quartzose and micaceous gneisses. A hill of limestone extends for about a quarter of a mile across lots 11 and 12, on the

* Throughout this report all bearings in connection with strikes, striae, etc., are true bearing and an average constant magnetic variation has been allowed for of 12° W. Mr. White found the average variation about 11° but, in the time elapsed since his surveys were made, the annual increasing variation would make it now about 12°.

N. E. side of the road. The limestone is bedded; the hill rises almost perpendicularly alongside the road and its general direction is about north-east.

North of Malcolm creek, where the road runs off the sheet, the rock is principally grayish quartzite and micaceous gneiss striking S. 23° W. and dipping N. E. at a high angle. A dike of dark mica-diorite, about two chains in width, intersects it about eight chains north of the creek.

Rocks in vicinity of Tamo lake.

The rocks in the vicinity of Tamo Lake are similar to those closer to the Lièvre. At the top of a high hill, on the west side of the old lake, near the corner between lots 14 and 15 and cons. V and VI, East Portland, gneiss, with pegmatite veins, strikes N. 11° E. and dips easterly at about 45°. The same rock occurs along the road from Tamo lake to Salette, for about a mile. Here, gray gneiss, with large masses of pegmatite, is associated with the plagioclase-purplish quartz rock. The ridge leaves the road and runs off in a north-westerly direction to Crafts mine on lot 25 con. VII.

On what was a little island on Tamo Lake, about the middle of lot 13, con. XII, banded gneiss strikes N. 55 W. and dips S. W., almost perpendicularly; this is intersected by a reddish, fine-grained, granitic gneiss. This banded gneiss is also seen on the east shore of the lake, where is strikes in the same direction. The granitic gneiss is also exposed on lot 13 con. VI, where it strikes N. 53° W. and is tilted practically on end, and appears again on the lake bed, a quarter of a mile south of the line between cons. VI and VII.

The rock of the ridge along the west shore is principally gneiss and quartzite. At the southern end of the lake, on the western half of lot 1 con. IV, micaceous gneiss outcrops, and along the east shore the ridge is composed of quartzose gneiss and quartzite. Between the narrows of the old lake and the North Star mine, the rocks are quartzose gneiss, with a little epidote and quartzite, striking from about S. 18° E. to S. 9° E. with an easterly dip.

Rocks between London mine and Tamo lake.

On the road from the London mine to Tamo lake the rocks, at about the line between lots 6 and 7 con. II, are quartzites and gray gneiss striking N. 42° E. and dipping almost perpendicularly. From here to the crossing of Cobb creek, gneiss and quartzite are seen and, from the creek, for a distance of half a mile, the road runs over flats to a small hill of coarse diabase. Gneiss, containing considerable pegmatite and associated with quartzite, strikes N. 15° E. and dips southerly on

the northern side of a small branch road on the line between cons. III and IV, and about half a mile west of the main road. There is another area of coarse diabase on the east of the road, a short distance south of the schoolhouse.

A road runs from the schoolhouse down through the S. W. portion of Derry, and is divided about the middle of con. IV of Portland, at the line between lots 1 and 2, into two branches which reunite on lot 5, con. III of Derry. Micaceous gneiss and quartzite are seen on the north side of the north branch as far as the town line. On the southern end of lot 4, con. IV, Derry, the gneiss strikes S. 8° W. and dips almost perpendicularly. South of this there is a small area of serpentine and limestone, and then gneiss, striking in the same direction, is again met with. On the south branch the rocks are quartzite and gneiss, and from the forks at the junction of the two branches, the road runs through tamarack, cedar, spruce and balsam swamp, to the middle of lot 4, con. II. Here there is a big bluff known locally as the "Roc Rouge", composed principally of feldspar and epidote. Just west of this there is micaceous gneiss and, with it, perthite, and on the Portland side of the town-line there is a ridge of quartzite and quartzose gneiss, striking S. 89° E. South of the road, on lot 3, con. II, Derry, banded gneiss, striking from S. 63° W. to S. 73° W. and dipping N. N. W., is seen.

Asbestus.

Asbestus occurs on lot 10, con. III, Derry, and several small surface seams were seen, the largest of which was about one in thickness.

Gneisses.

On the south side of the road between Crafts mine and the Chapleau mine micaceous gneiss is exposed striking S. 40° E. on lot 23, con. VII, and on lot 22, anorthosite, from lot 21, up to the Chapleau mine, is seen. The road is covered with growth. On lot 20, on the north side of the road, a very micaceous schistose gneiss strikes S. 21° E. and has an almost perpendicular dip. The main road from Crafts mine runs north-easterly from lot 21 and skirts the base of a ridge of reddish quartzose gneiss for half a mile. On con. VIII, near the south end of the line, between lots 23 and 24, the gneiss strikes S. 40° E. and dips north-easterly at 45°. Near the Philadelphia mine the same gneiss strikes in a similar direction and dips north-easterly at about 70°. Along the road from lot 22 on the line between cons. VII and VIII, a reddish quartzose gneiss, associated with quartzite, occurs up to above the middle of lot 17 con. IX. The strike varies from N. 29° W. at the southern end of lot 21, con. VIII, where the rock is dipping north-easterly at 70°, to N. 41° W. about the middle of the lot, N. 17° W. just north of the

line between cons. VIII and IX, and N. 8° E. about the middle of lot 17 con. IX.

A dike of dark mica-diorite crosses the road near the southern end of lot 21, con. VIII, and a small area of ophi-calcite (serpentine and limestone) occurs just south of the line between cons. VIII and IX

On the west side of the road, running north from the old narrows of Tamo lake to Clay lake, a very much weathered gneiss strikes S, 40° E. and dips almost perpendicularly. With it are associated whitish gray quartzite and pegmatite. North of the line, between cons. VIII and IX and on the west side of the road, there is an exposure of quartzose-gneiss striking S. 21° W. On the S. E. corner of lot 15, con. X, there is a small exposure of crystalline limestone, and the same rock is seen again about half a mile south of Clay lake.

A new road has been built from the corner of lots 12 and 13, cons. IX and X, running north-easterly into Derry and on its north side on lots 8 and 9, Portland, rusty micaceous gneiss with pegmatite veins is exposed. Gneiss and quartzite are seen near the town-line, and on lots 1 and 2, con. IX of Derry, biotite-gneiss with pegmatite veins and quartzite, strikes S. 37° W. and dips S. E. at 75° to 80°.

On lot 7, con. IV of Portland, quartzite gneiss strikes N. 36° and dips S. E. at 45°, and one hundred yards west of the town-line, schistose, micaceous gneiss, with quartz and pegmatite veins, strikes N. 51° E. and dips N. E.

Throughout the whole area examined, bands of pyroxenic rocks with which is associated apatite, occur, running generally through the gneisses and quartzites.

Rocks west of the Lièvre river.

Rocks on west bank of Lièvre river.

The road leading south from Chalifoux' ferry towards Priest creek, runs over clay to lot 4, con. V where it skirts the base of a ridge on the west. The rocks here are very much disturbed and consist of limestone, micaceous gneiss with masses of quartz and pegmatite, and also the purplish quartz-plagioclase rock. On the opposite bank of the river there is a small exposure of limestone. The gneiss is older than the limestone. One hundred yards further south, the hills are composed of gneiss striking N. 68° E. with a varying northerly dip. This road stops north of Priest creek which has not yet been bridged. On lots 4 and 5, con. VI, just west of the river, a ridge of gneiss striking from S. 69° E. to S. 89° E., extends back for half a mile. The gneiss contains

numerous veins and masses of pegmatite. Phlogopite and muscovite have heen mined near the river, but no development work is going on at present.

On the south-west side of Ross mountain quartzose and micaceous gneisses, associated with the purplish quartz-plagioclase rock, occur, and with them bands of pyroxenite. About the middle of lot 1, con. VII the strike is S. 74° E. and the gneiss is considerably iron-stained. At the western end of lot 4 con. VII biotite gneiss strikes S. 32° E. and dips N.E. at a high angle.

Rocks between Poltimore and Salette.

On the road running from Poltimore, West Portland, to Salette the first rock met with is a very rusty sillimanite-gneiss situated about a quarter of a mile east of the R. C. Church, containing considerable pegmatite and striking S. 47° E. with an almost perpendicular dip. About 12 chains farther the rock is bluish-gray in colour, weathers very rusty, and consists of plagioclase, mica and quartz. Dolomite occurs in a hill just east of this, and on the northern end of lot 21, con. VII the rock is a very rusty, much decomposed gneiss with an approximately general north and south strike and an easterly dip of about 45°. On lot 20, in the same concession, there is a small hill of coarse granular crystalline limestone, with minute particles of graphite disseminated through it, and associated with the limestone is a rusty gneiss. On the line between lots 18 and 19, con. VII, the gneiss is striking N. 5° E. and is associated with quartzite. The outcrop is the first found on the south of the Poltimore road. About the middle of con. VII and on the line between lots 14 and 15, the gneiss strikes about N. 5° W. and clearly defined glacial striæ were here observed running S. 25° E. On lot 11, con. VII and on the north end of lot 12, con. VI, alongside the road, mica-schist, very rusty and twisted in places, has a general strike of from N. 61° W. to N. 57° W., dips south-westerly at about 50°, and is associated with the purplish quartz-plagioclase rock, containing small inclusions of altered pyroxene. Near the line between lots 8 and 9 and cons. VI and VII, the road meets the base of a ridge, running off to the north-west, which it skirts for about a mile. The ridge is composed principally of rusty micaceous gneiss and quartzite, but on lot 7, con. VI the gneiss is more granitic, strikes N. 68° W. and dips south-westerly at about 50°.

Glacial striæ.

Here again, glacial striæ are well defined, having a direction of S. 27° E. The immense fires that have swept over this area have blistered the rocks in many places, obliterating surface-markings, and this is probably why striæ were not found more frequently, the two places referred to being the only ones where reliable striæ were observed.

An old road, now fallen into disuse, runs from Chalifoux ferry to the site of Holland's mill, which was burnt down some years ago. Where this road crosses the east line of lot 7 con. VI, a small patch of crystalline limestone is seen, and just past it, gray gneiss strikes N. 82° W. and dips N. at about 80°. A little more than a quarter of a mile before reaching the mill, quartzose gneiss strikes S. 53° W., and dips south-easterly, and about ten chains farther the gneiss is very rusty. At the mill, it is striking 10° west of south and dipping easterly at 60°.

To the east of the road, on lot 14, con. VII, there is a hill of banded gneiss about a quarter of a mile in length and ten or twelve chains in width. The gneiss is striking S. 12° E, and dipping east at 70° to 75°.

Fresh-water shells.

A road running to Buckingham leaves the Salette-Poltimore road at the corner of lots 13 and 14 and cons. VI and VII, traversing the southern part of the sheet in a south-easterly direction. Just west of this corner, there is a hill of coarse granular, crystalline limestone, and, outcropping at its base, is a small mass of quartzite. On the top of the hill, fresh-water shells (*Planorbis*) were found. Several small hills are located crossing con. VII, between the road and Harper's lake, and at the base they are generally composed of quartzite, occasionally associated with bands of rusty gneiss striking N. 10° E, and dipping W. at from 50° to 60°. The upper portions of the hills are composed of crystalline limestone.

The road across cons. IV and V follows the east bank of Wright's creek, a tributary of Priest creek. The hills to the east of the road are composed of quartzite and gneiss, while, to the west of the creek, there is a belt of crystalline limestone. Sharp differentiation is shown on the east side of the road near the line between cons. IV and V, where, in the space of a few yards, the rock varies from a quartzite to either a hard granitic gneiss, a hornblende schist, or a hard, smooth hornblende.

Asbestus.

About half way across con. V there is an occurrence of asbestus on the east side of the road, on lot 16, the property of Mr. Nicholas Orange. Some development work has been done here, and seams an inch in thickness are said to have been found, but half an inch was the largest noted.

Almost midway across con. IV, the hill east of the road is composed of red granite gneiss striking N. 38° E., and dipping S.E. to 60°. South of this, there is a hill of massive feldspar and quartz, weathering

white, and intersected in places by numerous small veins of hornblende. To the west of the creek crystalline limestone is exposed. Near the line between cons. III and IV, on both sides of the road, the plagioclase purplish quartz rock is found, and S.W. of the road, on about lot 8 con. III., there is a knoll of gneiss and a white weathering rock, quartz and feldspar. Reddish gneiss strikes S. 35° E., and dips N.E. just north of the road on lot 7 con. III. A light gray, granitic, acid gneiss, with very little mica, is striking S. 35 E., and dipping N.E. at about 60° on the north side of the road in lot 7. A ridge runs off, a little west of north, from the lower part of lot 2, and is made up here of a basic granitoid gneiss, hornblende and biotite, intersected by occasional small veins of pyroxene rock.

Crystalline limestone.

On the road from Poltimore to big Blanche lake, a low ridge, about a quarter of a mile long and three to four chains in width, extends from the crossing of the line between lots 28 and 29, con. VII., Portland, in a direction of about S. 27° E. It is composed of hornblende and mica-schist, and just south of it there is a similar low ridge of a fine-grained basic gneiss, the same rock being exposed on the N. W. side of the road. Very quartzose gneiss and granite, striking N. 24° W., and dipping easterly at about 45°, occur to about the middle of lot 29 on the north side of the road. Here a small bluff of massive, very coarse-grained, whitish, crystalline limestone, with particles of graphite disseminated through it, is met with and extends for about two chains.

A hill of the same limestone, about three-quarters of a mile long and a quarter of a mile in width, its axis lying in a general northerly direction, occupies the area between the two heads of St. Germain creek in con XI., Wakefield. These hills are much weathered and decomposed near the surface, and the broken up, decomposed rock found everywhere at the base of their slopes somewhat resembles rock-salt in appearance. A small knoll of the same rock is seen just east of the Presbyterian Church on con. X and another just west of the road and south of the line between cons. IX and X, the latter a little finer-grained and more of a dolomite than the former. East of McMullins lake the ridge is composed of rusty gneiss, mica-schist and the plagioclase purplish quartz rock with the altered pyroxene inclusions. On the road west from Poltimore, a big hill of the coarse crystalline limestone is met with on the north side of the road, at the Denholm-Portland line. It contains numerous inclusions of a very rusty gneiss in pieces of all sizes. A knoll of the same rock lies just south of the road to the west of the line.

On the west of the road north from Poltimore, fine-grained micaceous gneiss is seen about 15 chains south of the line between cons. VIII and IX, Portland. Between this exposure and the line, also on the west of the road, there is a knoll of limestone. A small hill of limestone a quarter of a mile in length lies to the west of the road in con. X. The road forks at the line between cons. IX and X, one branch running to the north east, known as the German settlement road, and the other to the north-west runningup into Denholm. Near the latter road, 100 yards north of it and just west of the forks, there is a big hill of limestone, and west of the town line, on lot 47 of Denholm, there is a knoll of red gneiss, striking N. 47° E. and dipping S.E. at about 45°. West of the corner between Bowman, Denholm and Portland, red gneiss strikes S. 18° E. and dips easterly.

Gneiss.

The country, south and east of the German Settlemant road, is burnt and weed-grown for a distance of about a mile. On lot 19 con. X Portland, there is an exposure of very micaceous gneiss, and half a mile further, the road strikes the base of a big ridge of the coarse, granular limestone, which it skirts for a distance of about half a mile. A small hill of gneiss occurs on lots A and 1 con. V Bowman, and here the strike is N. 51° E. A few chains further there is another small hill : in this, limestone and rusty gneiss occur and at a point just about the line between lots 4 and 5, banded gneiss strikes N. 19° E. and dips S.E. at about 70°

On the Ross creek road, running north from the present Holland Mill Post Office, rusty gneiss is met with about the middle of con. IX, on the west side of the road, and a quarter of a mile further north, there is a small hill of coarse crystalline limestone with inclusions of rusty gneiss. The gneiss is met with again near the line between cons. IX and X, striking S. 67° E. and dipping northerly at 50°. Just past it, a big ridge of very coarse granular, crystalline limestone runs off in a north-westerly direction. To the east of a brook, which here runs along the road, there is a big ridge of gneiss, mostly reddish and fine grained, striking S. 29° E. and dipping easterly at about 70°. About the middle of lot A. in con. V, Bowman, there is a small knoll of a dolomitic limestone, much finer-grained than was found in most of the other hills.

Economic geology.

With regard to economic geology, the chief interest in the whole area is attached to the occurrence of apatite and mica, both of which were mined on an extensive scale for years, though unfortunately at the present time little or no development is being done. In fact, only one locality was noted where active operations were being pursued

during the past summer, and this was at O'Brien's mica mine, on lot 19, con. VIII West Portland, where work was carried on during a part of the summer.

Phosphates.

Since the early nineties, when the enormous development of the phosphate industry in the Southern States reached a point at which it was impossible for the Canadian mines to succesfully compete, the phosphate mines in this area have all been shut down, and no development work is now being done at all.

No particular attention was paid, during the past season to the occurrence of phosphate and mica in this area, the subject being one which has occupied the attention of, and been fully investigated by, many well-known geologists. Among those who have contributed to our knowledge on this subject may be mentioned Sterry Hunt, J. W. Dawson, G. M. Dawson, Harrington, Adams, Torrance, Dawkins, Kinahan, Falding, Bell, Coste, Ingall, Penrose, Selwyn, Davidson, Ells, O-ann and Gibson.

As the only places in this area, where the occurrence of phosphate can be well studied, are at the mining pits, and as these pits are now full of water, examination must be confined mainly to the dumps. These consist principally of gneiss, quartzite, pyroxenite and mica, and an examination of nearly all the mines *showed that the apatite is always accompa-ied by pyroxenite.*

Prof. Osann's conclusions.

In regard to the relation between the pyroxenite and the apatite, some results arrived at by Prof. Osann, who made a close study of the occurrence of apatite in this field in the fall of 1899, may be quoted.

He says : " The apatite veins are always accompanied by so-called pyroxenite ; they seem to be connected with its occurrence." Again, speaking of the apatite deposits : " They are all of the same origin, and younger than the associated gneisses. They are accordingly true veins which have been formed in the same way as all other ore-veins."

Surface Geology of Eastern Quebec.

By Dr. R. Chalmers.

Work dnring winter of 1903-1904.

The winter of 1903-04 was spent by Dr. Chalmers in the office compiling the fieldwork of the previous summer and preparing a bulletin on *Peat in Canada.* In this paper a description of nearly all the known peat bogs of the Dominion is given, together with an account of the processes employed in preparing this material for fuel, coke or

moss litter. Information concerning peat bogs was furnished to persons interested in these, in answer to inquiries from different places in Canada, and some time was also taken up examining drillings and logs of wells bored for oil, gas or water.

On the field work accomplished during the past season Dr. Chalmers makes the following report :—

Field of work for 1904.

The work assigned me for the season of 1904 was the study of the surface geology of the St. Lawrence valley, principally to the north and east of Quebec city, including that of the Gaspé peninsula, and of the Saguenay river and Lake St. John district. Before commencing this, however, a short time was spent at Brockville, Kingston and northward and north-westward into Renfrew and Hastings counties along the border of the Archæan area, with a view of obtaining, if possible, further evidence as to an axial uplift in the Post-Tertiary period north-east and north of lake Ontario. Stratified beds of sand and gravel, with a flow-and-plunge structure, deposited by waters flowing eastwardly were observed in several places between the St. Lawrence river and Renfrew, occupying different elevations, the highest being met with between Sharbot and Calabogie lakes at 800 and 850 feet. Lower beds of the same character occur to the west near Madoc Junction, also to the east three or four miles north of Smiths Falls. At these places, the elevation is 502 feet and 440 feet respectively. Further, certain yellow sands and gravels, holding calcareous concretions, common in the basins of lakes Ontario and Erie, have also been transported eastward at this period and deposited upon the Leda clay and Saxicava sand along their western border. These were observed as far east as Prescott. From the facts obtained, it became evident that, at the time of the formation of these sand and gravel beds, different relative levels existed, the granite axis being lower than at the present day, and the waters in which the highest of these beds were laid down must have overflowed from the ancient lake Ontario out upon the St. Lawrence marine plain at various points.

At Brockville and Kingston.

Western limit of Leda clay and Saxicava sands.

Conclusions from observations made.

The conclusions tentatively arrived at from the investigations are, that (1) The marine beds of the St. Lawrence valley reach their western limit at Brockville and along a line passing by Maberly station (Canadian Pacific railway), Lanark, Calabogie and northward, and are overlapped, in places, by fresh-water sands and gravels from the west.—(2) The deposits of the basins of the Great Lakes are glacial and lacustrine ; and (3) The St. Lawrence valley and the lake region must have

stood at a lower level at the close of the Pleistocene* and beginning of the Recent Period of Post-Tertiary geology than at the present day, and the Archæan axis referred to, slightly higher than these, holding in lake Ontario or a still larger body of water. This condition of things was follow d by a downward movement of the so-called Archæan neck and granite axis, with correlative uplifts to the east and to the west. The raised marine shore-lines on the one hand, and those of lacustrine origin on the other, must have been formed during certain pauses in the oscillations referred to. Taking all these facts into account, there would seem to have been only one general subsidence of this axis during and since the glacial period with two or three cessations of the stresses which produced the oscillations, and one upward movement still in progress, as shown by the present position of the Iroquois beach, and by the observations of Dr. Gilbert of the United States Geological Survey.‡

A brief preliminary note embodying the results of the investigations was prepared and published in the September number, 1904, of the *American Journal of Science*, entitled *The Geomorphic Origin of the Raised Shore Lines, Etc.*

Work in the Gaspé peninsula.

On returning to Ottawa, a few days were spent in routine work in the office, and in preparing the paper referred to. On the 27th of June I left for the regular field work of the season, proceeding first to Gaspé peninsula. In carrying out the work intrusted to me there, I started from Metapedia, going thence to New Carlisle and Paspebiac, where a few days were occupied making examinations in the rear settlements and along the coasts towards Port Daniel. At Gaspé basin the surface deposits, glaciation and raised shore-lines were investigated while arrangements were being made for a trip around the north shore of the peninsula. With camping outfit, and a man and boy, I started on this difficult and laborious journey, having only a single horse and express waggon. A considerable part of the trip was, however, accomplished on foot ; but occasionally, in the mountainous country, we hired a second horse. The roads are the worst in Eastern Canada, especially between Fox river and Sainte Anne de Monts, passing over hills 800 to 1,500 feet high, and descending into the narrow valleys at the mouths of the rivers, where the fishing villages are situated. In several places these roads are so bad, and the hills so steep, that we had to take to the shore and follow it to the

* The term Pleistocene as employed here embraces that period beginning at the close of the Pliocene and ending with the deposition of the Leda clay and saxicava sands.

‡ Recent Earth Movements in the Great Lakes Region, Eighteenth Annual Report, U.S. Geol. Survey, 1896-97, Part II, pp. 601-647.

next fishing village. Most of the coast district between Fox river and Valley river is unsettled, except at the fishing stations. Generally speaking, it forms an undulating plateau from 700-800 feet to 1,200-1,500 feet high, trenched by rivers and brooks, and with a steep face to the gulf. The banks, which are angular, abrupt, and without that rounded appearance so characteristic of ice-worn surfaces, have undergone tremendous erosion by the sea, the regular curving form of the coast line being largely due to this cause. Inlets at the mouths of rivers and brooks are enclosed between steep, angular bluffs, the upper brow of these being sharp in outline and bearing no traces of ice action. Nor do the higher hill sides and summits exhibit any erosion by ice, sub-aerial decay and waste having apparently had full sway here. These features characterize the coast district from Fox river, or Anse au Vallon, to Ste. Anne des Monts, this part of the coast being higher than that to the east or to the west. No ice seems to have impinged against it, or passed over it from the north, south, east or west. A thick coat of decayed rock *in situ* forms the superficial covering, but no boulder-clay nor transported material was observed except such as was found on the shore and the lowest terraces. Atmospheric erosion and the action of the rivers were the principal factors in the reduction of the surface on the higher grounds. Doubtless glacier ice occupied the central and mountainous parts of the interior, but it does not seem to have reached this part of the coast.

Absence of glaciation in some parts.

The surface geology of the Gaspé peninsula was examined, many years ago, by Dr. Bell, and the local character of the drift described by him in a paper published at the time* ; it was also referred to by Dr. Ells in his report on the geology of Gaspé†. In Dr. Bell's paper he remarks that he failed to discover a single stone which had not been derived from the rocks of the country, until he visited Cape Gaspé and Point Peter, where boulders of Laurentian gneiss were found in abundance on the sea beach. The truth of this statement was borne out by the facts observed by me on the north coast, no foreign drift or boulders having been met with there, either, except such as had been transported thither by floating ice. As soon as we pass Cape Gaspé, going west, the gneiss and granite boulders referred to by Dr. Bell, evidently derived from the Laurentides, begin to appear and can be traced, with little or no interruption, on the lower grounds westward to Rivière du Loup, Quebec city and Lake Champlain. In proof that these must have been transported thither by floating ice, it may be stated that

Dr. Bell's paper on the surface geology of Gaspé.

* On the Superficial Geology of the Gaspé Peninsula by Robert Bell, C.E., of the Geological Survey of Canada, Can. Naturalist, Vol. VIII, 1863, pp. 175-183.

† Report of Progress, Geol. Survey of Canada, 1882-83-84, Part E.

they were not met with above the limits of the Pleistocene submergence, which at Gaspé, was 240 feet, increasing westwardly, though with some irregularity. Boulders of local rocks are, however, plentifully distributed thoughout in the peninsula.

Coast scenery.

From Ste. Anne des Monts, or, indeed, from Valley river westward, the coast scenery changes and becomes less elevated and bold along the St. Lawrence. At the first mentioned place, a number of hills, remnants of denuded ridges, occur to the east of the village, and now form separate peaks. Boulder clay, which had not been seen since we left Anse au Vallon, or Fox river, again appeared and glaciated blocks, apparently derived from the Shickshock mountains, were also noted. The hills now began to recede from the St. Lawrence river, and low bosses were observed to be rounded and worn on the south sides, evidently by ice that flowed northward from the mountains referred to. The surface beds here, too, contain large quantities of material derived, apparently, from the interior of the peninsula ; but the Laurentian gneisses and granites are still plentiful along the coast.

Ste. Anne des Monts.

From Ste. Anne des Monts, or Cape Chat westward, the country is settled for two or three concessions back from the river, near which good land was observed. This farming belt or terrace widens as we proceed up the St. Lawrence valley, the hills retiring more and more. At Metis the marine plain is two or three miles wide, and the foot hills of the Notre Dame are three or four miles from the river. Here, good evidence of northward ice-movement was shown by bosses, glaciated on the south sides, by transported blocks and drift from the interior, and by the presence of thick beds of undisturbed decayed rock material on the north or lee side of the foot hills. One of these beds can be seen under the snow-shed immediately to the north of Little Metis station, (Intercolonial railway). It is a mass of decayed slates *in situ*, lying on the northern brow of the ridge, and fronts the open St. Lawrence valley, thus showing that no ice from the north impinged against these hills at this place.

Conclusions respecting glaciation of Gaspé peninsula.

The investigations of the past season established the conclusion that, as was first shown by Dr. Bell in the paper cited, the glaciation and the transportation of the drift in the Gaspé peninsula, are entirely local, except such material as is due to floating ice on the north side. On the south and east sides the ice of the glacial period flowed outward from the elevated grounds of the interior, towards the periphery*. North of the range of mountains terminating at Cape Gaspé, the ice

* Annual Report, Geol. Surv. Can. Vol. II, 1886. *Ibid.* Vol. VII, 1895, pp. 88-90 M.

movement was eastward, veering apparently to a north-eastward course as we go up the coast towards Fox river. Here, or between this and Anse au Vallon all traces of ice action are lost and are not again met with till we approach Ste. Anne des Monts. It cannot be doubted that ice gathered upon the higher parts of the interior, but owing to the divergent courses of the river valleys and the elevated character of the coast border between the two places mentioned, the ice upon the mountainous country, in the central part of the peninsula, must have found outlets in other directions. A portion flowed eastward, and probably south-eastward, following the rivers which fall into Gaspé basin and the Baie des Chaleurs, while other parts, further west, descended northward more directly to the St. Lawrence river along the Ste. Anne des Monts and other river valleys. Whatever explanation is given, the fact remains that it is only along that part of the northern coast border, which rises from 800 to 1,500 feet above the sea, that the evidences of glaciation are wanting. From Ste. Anne des Monts westward to Metis, Levis and, indeed, to the International Boundary near Lake Champlain, there are abundant striæ proving northward ice-movement from the Shickshocks, Notre Dame and Sutton mountains into the St. Lawrence valley. These striæ are especially well-marked at Metis, Trois Pistoles, the south side of Cranbourne mountain, at Inverness and South Somerset, Richmond, and in Brome and Missisquoi counties, and boulder-clay, without Laurentian boulders, but evidently derived from the mountain ranges to the south, occurs in the localities mentioned. To the west of Quebec city, but not to the east, striæ are found superposed upon this south-to-north set produced by ice which came from the Laurentides. This ice spread over the greater part of the Eastern Townships and province of Quebec, west of Bellechasse and Dorchester counties, and appears to have crossed the International Boundary in a number of places, and to have flowed up the Lake Champlain valley. Another and later glacier from the Laurentides moved south-westward and westward up the St. Lawrence valley, the source of which appears to have been the high grounds between Lake St. John and the head of the St. Maurice and Batiscan rivers. Striæ produced by this glacier were found to be superposed on those of the earlier ice of the Laurentides. These systems of striation were described in a previous report,* and the latter ice movement will be referred to on another page in describing the glaciation of the Lake St. John and Saguenay region.

Ice in the interior.

Returning to the Gaspé peninsula, it may be stated that a considerable part of the region traversed on the north side contains arable

Agricultural character of region.

*Annual Report, Geol. Surv. Can. Vol. X. 1898 pp. 25-54 J.

land, even upon the higher grounds. The thick capping of decayed rock material lying upon the unglaciated portion forms, in most places, a good soil, and does not contain more stones than are found in other parts of the country. These lands are still largely covered with the original forest growth, which consists of spruce, fir, cedar, hacmatac, birch, maple, poplar, ash, beach, etc. Except in the vicinity of Fox and Magdalen rivers, no forest fires have over-run the country. From Grand Vallée to Magdalen river, where lumber operations were carried on some years ago, thence nearly to Ste. Anne des Monts, little of the original forest covering has been cut away. Lumber mills are now in operation only at Grand Vallée and Ste. Anne des Monts. At Valley and Chat rivers, and some smaller streams, the manufacture of birch into spool wood is carried on. This finds a market in Paisley, Scotland.

Fishing industry.

The primitive and isolated condition of this coast region is very remarkable, considering its proximity to the oldest and most thickly populated parts of Canada. The fishing industry seems to be the main dependence of the few scattered settlers, and the lack of easy communication with the rest of the world retards progress in various ways. The natural resources of this coast area are, therefore, still largely undeveloped. The seigniorial tenures doubtless hinder settlement in some places; and though the soil is suitable for mixed farming, early frosts interfere with the successful production of the crops. A much better state of things would undoubtedly prevail were the coast provided with good roads and other means of communication.

Striation at Chicoutimi.

After completing investigations in Gaspé, my intention was to examine the north side of the St. Lawrence and the Saguenay and Bersimis rivers, and if weather permitted, go as far as Point des Monts. Crossing from River du Loup, work was commenced at Tadousac, but bad weather setting in, we were obliged to wait, meantime making an examination of the Saguenay river and the basin of Lake St. John. At Chicoutimi, glacial striæ were found trending S. 74° E. and S. 79° E., while, on the road to Kenogami lake, they were observed to have a bearing of S. 86° E. West of Roberval, grooves were noted having approximately the same course. At the Grand Discharge the striæ run S. 75° E. From these data it appears that the ice, which occupied the Lake St. John basin and the Saguenay valley, flowed in the direction of this valley towards the St. Lawrence, but whether overriding the mountains at Trinity and Eternity capes remains to be discovered. Glacial grooves, with approximately the same courses as those at Chicoutimi, were noted in the vicinity of Tadousac.

Glaciation of the region around Lake St. John.

The glaciation of the region to the south and south-west of Lake St. John, comprised within the counties of Quebec and Montmorency, when studied along with that described above, indicates an ice-shed where the present water-shed exists, from which glaciers flowed westward and south-westward, southward and south-eastward, apparently in radial lines, those of the latter course descending the Saguenay valley as already shown. The ice producing these divergent courses probably had its source to the north of the ice-shed referred to above, and, if so, the fact that a portion of it was guided in its movement by the valley of the Saguenay, or drained into it, would show that it was not sufficiently thick or massive to be beyond the influences of the local topographic features. On the south of the mountains properly called the Laurentides, which front the St. Lawrence from Point des Monts, westward, the striation is light and, as already pointed out, the ice which produced it does not seem to have crossed the St. Lawrence river at any place below Quebec city. On the west of the ice-shed referred to, the ice-flow, as mentioned above, was south-westward and westward. Striæ with these bearings are recorded by Mr. Low in his list* in which courses varying from south to west are given as observed in Quebec and Portneuf counties. This ice followed the trend of the river valleys, as pointed out by Mr. Low. Whether the divergent striæ, found upon the higher grounds of this region, indicate two or more systems of glaciers has not been ascertained. No striæ have been met crossing each other on the same exposure; nor have two boulder-clays with inter-glacial beds been observed, as on the south side of the St. Lawrence valley. West of Quebec and Portneuf counties, however, striæ with a westward trend were found by me in 1896-98 superposed on others produced by the earlier Laurentide glacier, or glaciers, at St. Jerome, Montreal, Lachute, Calumet, Soulanges canal, Prescott, Lansdowne, etc., and on the south side of the St. Lawrence valley at Ste. Julie, Warwick, Richmond junct, Shefford mountain, Beauharnois canal, Valleyfield and westward.† In many of these localities the superposition of the westward-bearing courses is so clear, that the facts cannot be explained except on the theory that two separate glaciers passed over the region. Strange to say, however, no interstratified beds of sand or clay have yet been met with between boulder-clay deposits on the north side of the St. Lawrence, or upon the border of the Archaean area.

Striæ near Quebec.

Striæ in the St. Lawrence valley.

*Report on the Geology and Economic Minerals of the southern portion of Portneuf, Quebec and Montmorency counties, P.Q. Geol. Surv. Can. Vol. V, 1890-91 pp. 48-52 L.

†Report on the Surface Geology and Auriferous Deposits of South-eastern Quebec, Annual Report, Geol. Surv. Can. Vol. X, 1898, pp. 26-38 J.

Shore line.

Shore lines and all evidences of a lower level of the land at a former period were everywhere observed on the Gaspé coast, in the St. Lawrence and Saguenay valleys and around Lake St. John. On the south side of the St. Lawrence, local deformations were noted in a number of places. The presence of transported gneiss and granite boulders, scattered about up to a certain limit, assists, in many places, in defining the uppermost high water mark of the pleistocene submergence. Near Cape Gaspé this is about 240 feet, at Rivière Manche d'Epée it is 310 to 315 feet, at Claude river it is only about 267 feet, while at Ste. Anne des Monts it is about 300 feet. Near Little Métis the highest shore line is 420 feet, but at Ste. Flavie, further west, it is only 345 feet. At Trois Pistoles it was found to be 375 feet, and at River du Loup 475 feet.* It will thus be seen that there were at least two local sags or uplifts, as the case may be,—one between Rivière Manche d'Epée and Ste. Anne des Monts, and the other between Little Métis and River du Loup, and there are possibly more.

Changes of level, in the lower St. Lawrence valley.

At Tadousac.

On the north side of the St. Lawrence, these unequal changes of level were further noted, particularly in the Lake St. John basin and along the Saguenay gorge. At Tadousac several shore lines were seen, the highest, which is a very good one, being 405 feet above mean tide. Another lies below it at 180 feet. To the east of the village, the higher one extends along the St. Lawrence for three miles or more, and is one to two miles wide, undulating slightly in that distance. A great deal of its surface is covered with blown sand. At Murray Bay, the highest well-defined shore line is at 378 feet, which is 27 feet lower than the highest one at Tadousac. It rises to the west, however, being 479 feet at Les Eboulements, 540 at Ste. Anne de Beaupré, and 560 feet at Charlesbourg, north of Quebec.‡

At Murray Bay.

Terraces at Saguenay river and Chicoutimi.

Returning to the Saguenay river and ascending it, we find four well-defined terraces south of Chicoutimi. The relaton of these to the St. Lawrence valley terraces is, however, somewhat doubtful; the lowest is 265-270 feet above mean sea level, the second 325 feet, and the third 485-490 feet. The fourth and highest is wide, extending across a considerable part of the country between Chicoutimi and Kenogami lake at a height of 510-515 feet. Near this lake, gravel terraces occur at 525 feet, which, however, appear to be lacustrine. As regards the other terraces and shore lines, they are probably marine, being near the head of the present tide waters, though I did not find any marine

*These heights are all based on mean sea level.

‡Additional altitudes for the uppermost shore lines on both sides of the St. Lawrence valley are given in Annual Report, Geol. Surv. Can. vol, X, part J.

shells in the clays or sands here. Pleistocene marine fossils have, however, been reported from this locality.

At St. Jerome, near the foot of Lake St. John, the 515 foot terrace (513 feet here), a mile or two wide, was also noted. Another narrow one, at the base of the hills west of this village, was found to be 570 feet high, and in the narrow valleys, or indentations in the hill sides, with terrace bottoms water lines occur at 675 to 700 feet. At St. Jerome

West of Roberval, an extensive plain of sand and clay occurs at about the same elevation as that of the St. Jérome and Chicoutimi terrace, namely, 515 feet, (here it is 518 feet in places.) At the foothills there is a narrow terrace at 655-665 feet, and a higher, broken one at 710 feet. These appear to be parts of the terraces observed at St. Jerome at 675 and 700 feet.* Near Roberval.

The wide terrace at the same altitude, (515 feet) at Chicoutimi, St. Jerome and Roberval is, therefore, practically horizontal for 65 to 70 miles, and the question arises, is it marine or lacustrine, that is, did the sea enter the Lake St. John basin in the Post-Tertiary period, or was this great terrace formed in the bottom of the ancient body of water representing this lake. At present this question cannot be satisfactorily answered. Sea shells have been reported from the clays of the Lake St. John basin, but I could not find any, though some time was spent in searching for them. In a brick-yard at Roberval, however, a species of *Unio* was discovered in the clay. Near tide head at Chicoutimi, marine shells were reported to have been found in clay beds, presumably Leda clay, but whether in the highest terraces, or near the present tide level, I could not ascertain. If this extensive terrace be marine we must have had a differential elevation of the region, that is, the Lake St. John basin has risen 110 feet higher than the country at the mouth of the Saguenay, 70 miles to the south-east. On the other hand, if the Lake St. John terraces be lacustrine, where was the barrier which held up the waters to this height? The clays there, it must be admitted, do not resemble the Leda clays of the St. Lawrence valley; on the contrary, they are somewhat similar to the clays in the Lake Ontario and Erie basin. This fact and the occurrence of *unioniæ* in them seem to be against the marine hypothesis. The question as to their marine or lacustrine origin therefore remains in doubt. Wide terraces near Lake St. John.

Differential elevation.

There is, however, another problem in connection with the altitude of the terraces referred to, which cannot be passed over without some Problem in connection with terraces.

* All the heights were based upon those of the Q. and L. St. John railway as given in White's "Altitudes."

attempt at explanation. Taking the depths of the Saguenay, between the mouth and Chicoutimi, at tide head, into consideration the difference between the deeper and shallower parts is so great as to be inexplicable on the erosion or deposition theory. The St. Lawrence opposite the mouth of the Saguenay river, is 120 to 180 feet deep, Inside of the mouth of the Saguenay river, the depth is 600 to 648 feet, while above this, at Point Laboure, it is only 300 feet. In the narrowest part of the valley, below the mouth of Ste. Marguerite river, the general depth is only 200 to 300 feet, though in one spot 432 feet. At St. Jean bay it is 708 feet, and at Eternity Cove, now called Echo Cove, in the guide books, 870 feet; above Trinity, 870 to 876 feet, the last two soundings being in the deepest part of the whole river. From this to the entrance to the Ha Ha Bay, the average depth is from 870 to 708 feet. Above Ha Ha Bay the river shoals, and is only 492 and 360 feet, diminishing in depth further up to 180 feet and less. It will thus be seen that the Saguenay, in its tidal part, is a great trough 70 miles in length, from half a mile to two miles in width, and from the hill tops on either side, 2,000 to 2,500 feet deep in the deepest part, namely at Cape Eternity. In the shallower parts, however, it is not more than 800 to 900 feet deep. In its present form, therefore, it does not seem as if it could be simply a valley of erosion; and yet erosion must have been one of the principal agencies which contributed towards its formation. The inequalities in the bottom, as well as in the width, constitute the chief difficulties in regard to its origin, and the question arises, could unequal deposition of sediment, with unequal erosion by the river, or by tidal scour, produce these inequalities. Where the valley is narrowest, namely, below the confluence of Ste. Marguerite river, it is shallowest. One thing is indisputable, namely, its great age. It seems certain that it has been an outlet for the waters of the interior ever since the land rose above the sea. Differential movements, transversely to the general direction of the gorge, must have taken place, probably throughout its whole geological history, and continued into the Post-Tertiary period. The St. Lawrence valley, from Orleans island eastward, does not appear to have been affected by differential or local movements in the same manner, its bed being comparatively even and regular. The border of the Archæan area must, therefore, have been for ages an oscillating zone, especially that part of it crossed by the tidal waters of the Saguenay river. Only on this theory are we able to account for the great differences in the depth of the valley. Glaciers have probably enlarged it laterally, and deepened it in some places, but they could not produce the gorge or leave it in its present form, for some of the shallowest parts, it will be seen, are where it is narrowest, and the hills lowest, and the deepest parts are at Trinity

Depths of Saguenay river.

Inequalities of its bottom.

and Eternity capes, where they are highest. Though a considerable part of the Saguenay gorge lies below the level of the bed of the St. Lawrence opposite, thus proving that it traverses a sunken area at present, yet the amount of the vertical displacement, relatively, is difficult to calculate. The marine shore lines of the Post-Tertiary period afford only a partial answer to this question. Leaving out of consideration the terraces around Lake St. John, as it is doubtful whether they are of marine or fresh water origin, we shall compare the altitudes of those along the tidal portion of the Saguenay river. At Tadousac the highest was found to be 405 feet, and at Chicoutimi (tide head) 515 feet, the difference between these being 110 feet. Not to speak of more local deformations, this may mean either that the uplift in the upper Saguenay region was greater than towards the mouth of that river, or that a greater subsidence took place between Chicoutimi and the St. Lawrence. The latter view seems more in accordance with the facts, the bottom of the Saguenay being lower than that of the St. Lawrence. The hypothesis of a subsidence of the margin of the Archæan, or rather of that part of it between Chicoutimi and the St. Lawrence traversed by the Saguenay river, appears to satisfy all the conditions of the case. This subsidence and the local deformations shown by the form and condition of the bottom of the gorge seem to have taken place concurrently. Taking all the facts together it is quite probable that a change of level has occurred on the north of the St. Lawrence, in the region between Quebec and Bersimis, or Point des Monts, by which a portion of the margin of the Archæan, at least, has sunk some hundreds of feet relatively, to the region on the south, and possibly on the north also, though the evidence points to a post-glacial differential uplift at Tadousac and Chicoutimi.

Subsidence in the region traversed by the Saguenay river.

The drainage features of the Lake St. John district exhibit some peculiarities. This lake seems at one time to have had at least two outlets,—one by the present channel by the Grand discharge, another by Kenogami lake into Ha Ha Bay, the latter probably leaving the lake at La Belle Rivière. The Kenogami channel is now drift-filled from the south end of the lake to St. Alphonse, at Ha Ha Bay, and is levelled off to the same height as the general surface on both sides. Chicoutimi river, the present outlet of Kenogami lake, has a number of waterfalls in its course and is evidently a new river. What caused the damming of the ancient channel between the lake and Ha Ha Bay has not yet been ascertained, but it was probably the drift thrown into it during the glacial period.

Drainage features of Lake St. John district.

In this region, a number of very interesting problems in regard to the glaciation, geomorphic changes, altered drainage lines, etc. offer

themselves for investigation and study this region but they can only be dealt with in a detailed report.

Surface deposits in the district examined

The surface deposits met with in the districts examined during the season, are as follows, in descending order :—

(1). Peat bogs and decomposed vegetable matter.

(2). Lacustrine and fluviatile sands and clays sometimes containing shells of *Unio*. Except for the presence of these shells it would be difficult to distinguish the sands of this series from Saxicava sands.

(3). Saxicava sand, and Leda clay, } Champlain of United States geologists.

(4). Boulder-clay.

(5). Decomposed rock *in situ*.

Decomposed rock.

The last has been noted in a great number of localities on both sides of the St. Lawrence valley. As already shown, it occurs in thick sheets on the north shore of the Gaspé peninsula, in a belt about a hundred miles in length and of variable width. In this unglaciated coast district, it constitutes the principal covering of the rocks. Along the foot-hills on both sides of the St. Lawrence too, it is found in thick beds, because in these places it has been protected from the erosive action of the glaciers.

Boulder-clay.

Boulder-clay has not been observed in very heavy beds in the districts examined, except quite locally. On the north side of the St. Lawrence, it is often a sandy clay filled with boulders, owing to the abundance of sand upon the southern border of the Archæan. Most of the boulder-clay is local, that is, the materials composing it have not been transported any great distance. The boulders, however, have been in some cases carried long distances, especially those which have been moved about by floating ice and which are now met with on the lower levels. The Laurentian gneiss and granite boulders, scattered on the north coast of the Gaspé peninsula, are examples. These have been borne thither by the drift ice from the north side of the St. Lawrence and carried eastward.

Leda clay and Saxicava sand

The Leda clay and Saxicava sand, which apparently form two distinct beds, are well developed along the St. Lawrence, and often con, stitute thick deposits. The materials of these are chiefly of local origin- though in the indentations, wherein lie the estuaries of the rivers, there is a considerable proportion of it which has been transported some distance. Fossils are plentiful in the clays and in the lower part of

the sands. Notwithstanding the fact that the Leda clay and Saxicava sand are often separated by a tolerably distinct line of demarkation, apparently demonstrating succession in the beds, yet they must frequently be of contemporaneous origin, that is, while the Leda clay was being laid down in deep waters, the Saxicava sand may have been deposited in the shallow parts, and may be largely a littoral formation. The fossils contained in it are usually shallow-water species, *e.g. Macoma Balthica, Mya arenaria*, etc., and the sands sometimes show tidal or wave action. In other places it occurs in wind-blown ridges or mounds. No boulder-clay was found overlying the Saxicava sand, though boulders commonly rest upon it, or are embedded in it; but in river valleys and on the borders of lakes, sands and clays of fluviatile or lacustrine origin are met with, and, near the coasts, these rest on the marine beds (Leda clay and Saxicava sand). On the west side of Lake St. John, fresh water shells (*Unio*) were observed in a clay bed at a Fossils. height of 25 to 30 feet above the lake. The lake itself is 341-314 feet above mean sea level, so that the sea which formed the 405 foot terraces at Tadousac could also have formed those at Lake St. John, if no differential changes of level had occurred since. Besides the fact of fresh-water fossils being met with in the clays of this lake basin, it may be stated that the deposits resemble those of lakes and rivers of the interior more than they do the marine beds of the St. Lawrence valley. But the basal portion of the series was not seen and this may be marine, like the beds at Sorel, Three Rivers, etc.*

The soil of the Lake St. John basin consists of a deep loam containing considerable quantities of vegetable matter, with a gray brick clay underneath, resting on boulder-clay in some places, or on the rock surface. The Lake St. John district is not as far north as some parts of the Gaspé peninsula; but from its inland position the climate is, I should judge, somewhat different. Soils and climate.

The Copper-Bearing Rocks of the Sherbrooke District, P.Q.

By Dr. J. A. Dresser.

According to your instructions received on June 10 last, my available time, two and a half months, during the past season, was devoted to the examination of the copper-bearing rocks of the Eastern Townships of the Province of Quebec. This is a continuation of the work of 1902 and 1903, and is now so far advanced as to make it possible Introductory.

* Summary Report for 1903, p. 142.

to prepare a final report on the area covered during the past three seasons. This will be prepared during the course of the coming winter.

Scope of investigations.

This investigation is concerned mainly with the Pre-Cambrian rocks, which occupy, in this part of the Province of Quebec, three principal areas. One of these is a band whose extent is not yet very accurately known, along the boundary line of the State of Maine; the second extends from Lake Memphremagog to Carthby and includes the Capelton hills and Stoke mountain; the third, or Sutton belt, extends from the International Boundary along the central part of the State of Vermont, to the county of Bellechasse, nearly south of the city of Quebec, and some thirty miles from the St. Lawrence river.

These belts have been known to be, in general, copper-bearing, and have been mapped as sedimentary. Recent investigations by the writer, however, having shown that the copper is chiefly confined to certain igneous portions, not hitherto recognized as such, the chief object of the present work has been to make a petrographic subdivision of the Pre-Cambrian strata, so as to distingusish for practical use the copper-bearing volcanics from the sedimentary rock, in which the copper is generally of little, if any, importance.

The past season's work was done principally in that part of the Sutton belt of the Pre-Cambrian area which lies between the St. Francis and the Chaudière rivers. This includes, wholly or in part, the townships of Cleveland, Shipton, Tingwick, Chester, Ham, Garthby, Wolfestown, Halifax, Ireland, Leeds, Inverness, Thetford and Broughton, as well as certain portions of the counties of Lotbinière and Beauce.

Bog-iron.

A special examination was made, by direction, of a bog-iron deposit near the village of Stanfold. A few days were also spent, toward the end of the season, in examining the copper deposits of St. Flavien, Nelson and Drummondville, which are the extensions, toward the north-east, of the Acton and Upton series. These are contained in, or closely associated with, igneous rocks intrusive through strata as late in age as Cambro-Silurian, and hence they are very different in age and structure from the deposits in the localities named above.

Nicolet Branch mine.

A large number of occurrences of copper, in the area covered this season, were recorded in the reports of the Geological Survey for 1863 and 1866. These have been visited, and several of the more important prospects have been examined. The greater number of occurrences are in, or nearly associated with, the ancient volcanic rock.

In the fourth range of Ham, and the 28th lot, is the mining location once known as the Nicolet Branch Mine. Copper pyrites and bornite here occur in dolomite, which lies on the south-east slope of a volcanic ridge. The general conditions are favourable to the view indicated by the history of the workings, that a considerable deposit of copper may here be found. As in several other occurrences, copper has apparently been concentrated by the breaking down of the volcanics in which it originally occurred. The first rock above these is dolomite, which frequently carries fragments of the volcanics, as well as masses of copper ore. Similar conditions are found in the 9th, 10th and 11th lots of the X1 range of Leeds. Here, chalcopyrite and bornite are found in dolomite within a few feet of the volcanic rocks. As in Ham, the dolomite is cut by numerous veins of quartz, and in them the copper most frequently occurs. This locality seems worthy of more careful investigation than it has yet received.

Similar conditions were also noted in several parts of Chester, notably on lot 6 of range III.

Lower Ireland.

In the vicinity of Lower Ireland, copper and iron pyrites are found in different conditions. The country rock is there so highly metamorphosed as to be almost completely recrystallized, and its original characters are thus far a matter of doubt. It is also invaded by dikes of a granitic appearance, and on the margin of one of these, as well as in the enclosing rock nearby, pyrrhotite, pyrite and chalcopyrite appear. These are in lot 1, range IV of Inverness, and lots 13, 14 and 15 of Craig's Road, range of Ireland. It is a locality which warants careful prospecting.

Talc

On lot No. 2, of Craig's Road, range of Ireland, is an apparently large deposit of talc. Associated with this are some small irregular masses of copper ore, of which the following assay by Gwillan and Johnson, Slocan City, B.C., was given me by Mr. W. J. Porter:—Copper, 41.2 per cent; silver, 19·2 per cent; gold, $16 per ton.

Chalcopyrite.

In the fifth lot of the IX range of Chester, chalcopyrite occurs in quartz veins within a rock that seems, from a preliminary examination, to be an altered sediment. The ore was not seen in important quantities. Galena is also said to occur here. I did not find any, but saw some specular iron which has been mistaken for silver, in several places, throughout this district.

Tingwick.

In lot 17, range IX, of Tingwick, is a property on which some work was formerly done for copper. There is no ore in sight, except a little

chalcopyrite, found in the shaft. The rock seems to be an altered sediment and not likely to carry much copper.

On the 25th, 26th and 27th lots of the IX range of the same township, however, there are somewhat better indications of copper. A large mass of igneous rock which extends through parts of these three lots contains irregular bodies of quartz, on one of which some trial pits have been sunk. They are said to have yielded a little copper. The present condition of the work did not admit of a conclusive examination.

The well-known deposits of the Harvey Hill and of the Halifax mines have already been frequently described in the Geological Survey reports. The country rock from these, however, will be subjected to microscopic examination.

Sutton hills.

Proceeding north-westward from the boundary line between the State of Vermont and the township of Sutton, the hills of the Sutton belt become gradually lower, and the volcanic portion forms a corresponding part of the Pre-Cambrian rocks. This, apparently, results from the volcanic ridges being more and more deeply covered by the flanking sediments, as the former decline in height.

Topography.

The distribution of the volcanics in the northern part of the district is still further connected with the topography. They are most commonly found along the southern base of the highest north-east-south-west-running hills. This is apparently due to the fact that over a large part of the area there is a distinct cleavage dipping at angles 20° to 40° towards the north-west, and, accordingly, the longitudinal valleys are deepest towards their north-west side, and the hills have their steepest gradients on the south-east. The volcanics are consequently most frequently found at the foot, and for some distance up the hills on the south-east side, being best exposed where the erosion has been deepest. They generally form elliptical areas, which are often nearly continuous, seemingly indicating the position of the highest volcanic ridges at the time of their first submergence. These ridges are frequently traversed by streams of considerable size, which afford a rather complete cross-drainage, and, incidentally, afford good cross-sections of the ridges—where they are not too deeply drift-filled. Such are the west branch of the Nicolet, the middle branch of the same river, and the series of lakes and streams from Black lake to the Becancour river. These valleys are commonly from six hundred to a thousand feet lower than the intervening hills. They are probably, in general, valleys of streams antecedent to the uplift of the ridges, but

in some instances, as in the vicinity of Lake William, their formation is probably due, in part at least, to cross-faulting. The extent of the volcanics will be shown by a map in the final report, which is now in course of preparation. Their most northerly appearance in the Pre-Cambrian area is in the northern part of Leeds, and in the seigniory of St. Marguerite, in the county of Lotbinière. This is only eight miles from the Chaudière river.

Gold

But in the region of the Gilbert river, twenty miles to the south of the Sutton belt, and on the north-eastern side of the Chaudière, the same type of volcanic rock occurs. It is there indicated as Cambrian on the Geological Survey Map of 1886, and in the short time available there were no means of satisfactorily examining the data for determining the age. Lithologically, this rock is a quartz-porphyry, and is identical with that of the Capelton hills and Stoke mountain, but from its position it is more likely connected with the Pre-Cambrian rocks of Lake Megantic. A further fact of importance, in this connection, is that this is the bed-rock of the lower part of Gilbert river, and only on, or below, this rock, as far as could be ascertained, does gold occur in important quantities. Michel, as early as 1866, pointed out that the gold was limited to a certain district, and accordingly a representative specimen of the country rock of that district was taken for examination, with the result that it is found to belong to the volcanic series.

Inter-relation of copper and gold.

On Stoke mountain, in the township of Dudswell, where alluvial gold also occurs in important quantities, a similar rock forms the bed of the Kingsley, Rowes, Big Hollow, and Hall brooks. It is also well known that gold occurs in most of the copper ores of the Ascot Stoke range, the celebrated copper mines of Capelton hill having originally been opened as a gold proposition. The upper Chaudière valley and the gold bearing regions of Ditton and Risborough should, accordingly, be prospected for copper as well as gold.

The gravels of all streams whose bedrock belongs to this volcanic series, and especially to the quartz-porphyry type, should also receive careful attention in all parts on and lower than the volcanics, wherever conditions suitable for the formation and preservation of alluvial deposits have obtained.

Pyrrhotite.

The pyrrhotite ores, also, which form important deposits near the serpentine belt further to the south-west, appear from place to place throughout this district. In Garthby they compose the well-known Garthby mine at Lac Coulombre, and also occur in a noticeable, and probably important, amount on lot 19 of range II.

Copper ores.

Totally distinct from the Pre-Cambrian rocks in age and mode of deposit, are the copper ores of St. Flavien, St. Appollinaire, Nelson and Drummondville. These occur in amygdaloidal volcanics of much later age, which are intrusive through sediments as late as Cambro-Silurian. These intrusions form a series of apparently uniform petrographic character, and appear at intervals from Roxton to St. Apollinaire, a distance about one hundred miles. Sometimes, as at Acton, the most famous of these occurrences, and at Upton, the ore is chiefly in the rock which has been invaded by the intrusive, but near or often in contact with it. At Roxton and Wickham, it is both in and near the intrusive, while at Wendover, opposite Drummondville, and at St. Flavien it is chiefly in the intrusive itself. Extensive work has been done on these deposits, especially at Acton and St. Flavien, while those at Upton still seem to warrant further attention.

Bog-iron ore

The deposit of bog-iron ore, reported from Stanfold, is generally similar to much that occurs around the edges of the St. Lawrence valley. On the farm of J. A. Leclair, range VIII, lot 18, the ore was found to be fifteen inches in thickness in the spot first opened. It rests upon boulder-till, which carries pebbles of Laurentian gneiss, and hence a recurrence of the ore at greater depth need not be looked for. It is covered by only two or three inches of humus and sandy soil. One or two other places, on being tested, showed a lesser depth of ore, and one, at three hundred yards distance, has a depth of only three inches.

Some ore, said to be two car-loads, has been taken from lot 19 of range VIII (St. Cyr's), by the Canada Iron Furnace Co. The ore is here also generally less than a foot in thickness; it is about two miles from Stanfold station. Although the quantity of ore yet disclosed is not large, these and adjacent properties should be better tested.

In lot 22, of the XI range of Inverness, on the farm of Jos Gagné et Frères, a similar but probably larger deposit of bog-iron ore was observed. There, along a small watercourse, a few rods east of the Becancour river, bog-iron appears very frequently for nearly half a mile. No work has been done, but the ore is said to have been found three feet in thickness, at a point where it was once dug through. This excavation was not open at the time of my visit. The property is six and a half miles from the Grand Trunk at Lyster, and is twenty-five miles from the deposits mentioned in Stanfold. Both deposits are similarly situated topographically, occurring in the flat land of the St. Lawrence basin, at a short distance from the older highlands at the south.

The Lotbinière and Megantic Railway line discloses indications of bog-iron ore in several places between Lyster and Kingsburg junction. This part of the country is not yet sufficiently opened to admit of satisfactory examination, but a continuation of the iron ore deposits of Drummondville may be looked for throughout this district when the land is cleared and the region becomes accessible for examination.

Botanical Work.

By Mr. J. M. Macoun.

Introductory.

Since the completion of Prof. Macoun's catalogue of Canadian plants, the botanical work of this department has fallen by degrees into my hands, so that at the present time the greatert part of this work is done by me, subject to revision by Prof. Macoun. The work connected with this branch of natural history has grown greatly in bulk and importance in recent years. The number of active botanical workers in Canada increases every year and, with very few exceptions, critical determinations and difficult species are referred to us. By degrees, our former custom of submitting our collections to specialists has been abandoned, as our increased knowledge and larger botanical library have made it possible for us to determine doubtful specimens and describe new species, and while it is still necessary to occasionally ask some acknowledged authority for assistance, this is never done until we have ourselves reached some conclusion. In other words, instead of sending away specimens to be named, we name them ourselves and then sometimes ask the opinion of a specialist. As our herbarium grows, there is constant need for re-arrangement; as soon as monographs and revisions are published, our herbarium material is re-examined and, when necessary, renamed. This entails considerable labour but the result is that the herbarium is kept in almost perfect order. The relabelling is done by Miss Stuart under my instructions.

Work done.

My examination, last spring, before the Committee on Agriculture and Colonization, occupied several weeks. With this exception, my whole time last winter and spring was spent in office work. Reference has been made by Prof. Macoun, in his report, to a part of this work. In addition to such assistance as I gave him, I worked up the collection of plants made by myself in the Peace River region, and examined many collections sent to me for determination.

Bay of Chaleurs.

Prof. Macoun's absence, during the summer, made it necessary for me to be in Ottawa for the greater part of the collecting season and

considerable work was done in this vicinity. Advantage was taken of my being at Percé, on the Bay of Chaleurs, to have me make a botanical examination of the region, and collections were made covering a radius of ten miles from that place. Though the season was early for flowering plants, everything collected is of value to the herbarium, as we had no specimens from that district. Enough was seen of the character of the flora to show that it would well repay careful study for a whole season. After my return from Gaspé, a month was spent in the office and on August 18, pursuant to instructions, I went to Berthier (en haut) to study the aquatic plants growing in the St. Lawrence. Collections of all flowering plants of interest were also made. Berthier is well situated for the study of aquatic plants, as there are numerous islands in the river, and on both sides of the stream there are bays and stretches of slack water. Two species of Potamogeton, *P. natans* and *P. perfoliatus*, grew everywhere, the other species noted being less conspicuous and of more restricted distribution. The most important of these were *P. heterophylla*, *P. pectinatus* and *P. pusillus*. All the species of the *Naiadaceæ*, known to occur in the St. Lawrence, were collected and, with them, the representatives of allied orders. Of the lower aquatic forms, such as *Chara* and *Isoetes*, few species were seen, and these have not yet been determined. The luxuriant growth of *Potamogeton*, where the current is not strong, makes it difficult to keep a channel open where there is not frequent traffic, but no easy way of destroying these plants or preventing their growth has yet been devised.

Hudson Bay region.

The autumn months were spent in the usual office work, which, this year, included the completion of the flora of the Hudson Bay region. This was almost ready for the press last winter, but two large collections, made last summer, have added greatly to our knowledge of the distribution of the plants growing in the region included in this work. The larger of these collections, numbering 238 species of flowering plants, was made by Mr. W. Spreadborough, who acted as Mr. O'Sullivan's assistant in his survey of the west coast of James bay. The second collection was made by Dr. L. E. Borden, the physician with Mr. Low's expedition. Not more than half of Dr. Borden's plants could be included in the Hudson Bay flora, as they were collected north of Hudson strait, a region outside the scope of this work. Large collections were made, however, at Fullerton, Southampton island, Port Burwell and Wakeham bay, and these have been included. All these plants have been determined and, while they include no species new to science, they add much to our knowledge of the flora of the

Hudson Bay region, and there is, perhaps, no other part of Canada that has been so thoroughly worked up.

Statistics. During the past year, 2,805 sheets of botanical specimens were mounted and placed in the herbarium, 1,692 being Canadian flowering plants, 672 foreign plants and 441 cryptogams. Not so many specimens as usual were sent from the herbarium in exchange for specimens received, as no time could be spared for labelling and distributing these, and we are still deeply in debt to some of our correspondents. More than 1,000 cryptogams were distributed and 1,194 flowering plants. These latter went chiefly to Kew, the Gray herbarium, the New York botanical gardens, the Missouri botanical gardens, the U. S. National herbarium and the Botanical Museum of Copenhagen.

Geology of Charlotte County, New-Brunswick.

By Dr. R. W. Ells.

Surveys in Charlotte Co. The first part of the season of 1904 was spent in completing the study of the geology of certain parts of Charlotte county, New Brunswick, the surveys of which, owing to lack of time, were left unfinished last season. This work included the examination of the rocks of Grand Manan island, and of portions of the shore of the Bay of Fundy, between Beaver Harbour and Point Lepreau, where, at different places, through the agency of intrusives, the ordinary sedimentary rocks of Silurian and Devonian age had become altered to the condition of schists of Pre-Cambrian aspect. Surveys necessary to connect the work of last season with the shore roads were also completed, but there yet remains the survey of the railway between St. Stephen and St. John, of which no plans are available, in order that the map of the county may be properly compiled.

Rocks of Grand Manan island. On the island of Grand Manan, the western side, and in fact the greater portion of the island, is composed of trappean rocks or diabase, similar to those which form the North Mountain range of Nova Scotia. No trace of the Triassic red sandstone was observed. The rocks of the south-eastern portion comprise large masses of eruptives, similar in character to those already described as occurring on Campobello and Deer islands to the north-west, which are intrusive through slates and conglomerates of Upper Silurian age, with small areas of limestone, the whole resembling what was found in Letang peninsula, south of the village of St. George on the mainland. The slates are greenish and gray with purple beds, and the action of the intrusives on these is

Upper Silurian slates.

quite marked. In places they have become schistose. The actual contact of the traps or diabase was seen at only one point on the shore north of Seal cove, on the south side of Red head Here, the extremity of the point is occupied by reddish and greenish gray slate, and at a distance of 300 paces west from the point, there is a sharp contact between the reddish slates which dip N. < 60 degrees, with a band, at the base, of about two feet, which is crushed, and holds pebbles of altered slates and trap. The first part of the igneous rocks consists, at the contact, of about fifty feet of conglomerate composed of augite pebbles in a dirty green augitic paste, beyond which the trap is columnar for some distance along the shore in the direction of Seal cove. The trap pebbles are of all sizes from that of a walnut to masses of a foot or more across. Seventy paces west of the contact with the slates, a band of similar conglomerate, about six feet wide, extends up the face of the columnar trap, filling an apparent line of fracture in the latter, after the manner of a later dike.

Trap and slate contact.

Contact at Fish Head.

As to the other eruptives of the island, associated with the Silurian rocks, possibly the best exposure of these is seen at the north-east point known as Fish head, on the north side of Cameron cove, which lies just to the north of Flaggs cove. They form the whole shore between the light-house and Whale cove, and consist of greenish diabase, reddish feldspathic rocks and imperfect syenites. Their contact with the slates is well seen on the north side of Cameron cove, and is here clearly intrusive. The slates are not only altered along the junction of the two series, but portions of the slates are caught up in the intrusive mass. Just where the outer light-house point joins the main mass, there is an intrusive dike of the trap similar to that of the west shore, with a breadth of about fifty feet, cutting across the diabase of Fish head in an almost east course. These rocks have been described in such detail in the Report by Prof. Bailey, 1870-71, that minute descriptions here are unnecessary. They are similar to the eruptives found on Letite peninsula and on Campobello and Deer islands, and their action on the Silurian strata is similar. These strata have sometimes assumed a schistose structure near the contacts, with the formation of quartz veins and strings of dolomite, while certain of the associated limestones are nearly crystalline. Probably the best exposures of these Silurian rocks on the island are to be seen around Flaggs and Cameron coves, and on the shore about half a mile south of the former place. At these places the slates are associated with intrusives, generally greenish diabase, distinct from the trap rocks of the islands, which cut the other ntrusives and are of a later date. As displayed on the shore below Flaggs cove, the sedimentaries consist of large ledges of purple conglomerate and sandy shales, with black slates and green schists. The

Schistose slates.

conglomerates contain pebbles of dark felsite, quartz and purple slates, are cut by quartz veins and sometimes assume a schistose structure They resemble similar rocks seen at Back bay on the main land where they contain Silurian fossils, and apparently overlie the greenish-gray slates of Flaggs cove. The contact of the conglomerates with the *slates* is often irregular, the former showing local development and with tongues of purple shale extending into the conglomerate mass. The black slates in association are like similar slates seen in Cameron cove south of Fish head, and, like them, are highly altered either by the agency of the green intrusives or in part by the trap rocks which touch the shore near this place. While from their peculiar character they were at one time supposed to possibly represent Pre-Cambrian rocks their manifest resemblance to the altered Silurian slates of the mainland in Charlotte county and of the islands to the north and west, in which Silurian fossils have been found, renders it very probable that those rocks of Grand Manan, like those of Letang and Letite may also be classed as altered Silurian.

Contacts of slates and intrusive rocks.

Along the shore the green eruptives are seen at frequent intervals to the final limit of the outcrops at Red Head where the trap of the island extends to the south-east shore. Where these slates are seen in small outcrops they are invariably altered, but preserve a general similarity of aspect. On several of the islands off this part of the coast, notably Long island, the Ducks and Nantucket, the greater part is occupied by intrusives, frequently diabase. In certain places, however, as on Big Duck island, a greenish, or sometimes purple squeezed porphyry is found, flanked by greenish and occasionally purple tinted schistose slates of the usual type. The bulk of the older rock, therefore, of this part of the island, as contrasted with the traps, may be classed as eruptive, with small areas of altered Silurian sediments. In this respect Grand Manan corresponds closely with Deer island and Campobello.

Rock of the east shore.

On the mainland the rocks of Beaver harbour and of the coast east to Lepreau were also examined. In this area several points of structure were noted concerning which some doubt existed last year. On the road from St. George to Beaver harbour, after passing over the series of slates which extend from Letite to the Pennfield ridge and which are of Silurian age, the reddish and purple weathering felsites are met with in a brook about two miles north of Beaver harbour. These extend to the village, forming hills. The felsites invade grayish, greenish and purple slates of the Mascarene series on the north side of the village with bands of conglomerate of a dark reddish tint. These rocks are schistose and overlie a thick series of generally black slates

Coast rocks at Beaver-harbour.

which form the headland south of the village, and which hold plant stems and are apparently of Devonian age. They are cut by masses of feldspathic granite and green diabase which have altered the beds along the contact. The eruptive rocks extend thence to the lighthouse point.

Similar rocks are seen on the east side of the harbour. It is probable that the Devonian rocks of this place have a somewhat local development and rest upon the Silurian of the Letite series.

Crow harbour and vicinity.

Going east from Pennfield ridge to Crow harbour, after passing the gravel deposits which form the large plain along the ridge road, masses of green diabase occur for a distance of a mile along the road to the shore. These are succeeded southward by gneissic diorite, and these again by felsites and gneissic granite with schists, often mixed with a basic granite. Along the shore of Crow harbour the rocks are schists of an older type, as also at Red Head cove. They are gneissic, sometimes talcose, and are associated with diorite and basic granite which are intrusive. On the east side of Red Head cove there is a copper mine which was opened in 1878-9, and reopened about five years ago, a considerable amount of development work being done. The ore occurs in the schists at the contact with the intrusives and consists for the most part of iron pyrites in irregular gashy deposits. Only a small quantity of copper is visible. These rocks, from Crow harbour east to Barnaby Head, appear to belong, as indicated on the map, to the Pre-Cambrian series.

Copper mine.

Iron ores near Lepreau.

They are continuous from this place to the vicinity of Lepreau, though in places overlaid by red beds of the Perry group. About two miles west of Lepreau village, and half a mile north of the post road, a deposit of magnetite has been developed to some extent by pits and has been proved during the past winter by a magnetometer survey under the management of Mr. Anderburgh who came out from Sweden. The rocks are dark or blackish-grey schists with masses of hard green diabase, dipping to the north-west at a high angle. These belong to the old crystalline series, and the ore appears at the surface in several small strings having a thickness of five inches in one place. Boring with a diamond drill was carried out on this place but the results have not yet been made known.

Crystalline limestones near Lepreau.

On the road leading from Lepreau to Lepreau point, a mile or so beyond Belas basin, eruptives comprising felsites and diabase cr osshe road and underlie the Devonian of that area. Between the shales and the eruptives are certain limestones which are highly crystalline and were supposed at one time to possibly represent the Pre-Cambrian

limestones of St. John. The re-examination of these rocks shows that they are bluish limestones altered by the agency of the diabase and other eruptives and similar to the limestones of Frye's island. They underlie the Devonian shales which, at the contact of the intrusives, have also been altered. The passage of the crystalline limestone into the bluish variety can be seen at several points east of the road. The rock is seamed with small strings of dolomite.

On the south side of the limestone area, at the old limekiln, the lower portion of the rock is filled with pebbles of a reddish-brown granite. It does not present the aspect of a true conglomerate, but rather appears to be due to the action of the intrusion into the limestone. This is near the contact. Masses of the limestone are a pure white marble, but this changes as the granite recedes. The formation is directly overlaid by the brown conglomerate of the Perry group.

Post-road, Lepreau to St. George.

On the old post-road between Lepreau and St. George the crystalline schists extend westward from the former place for about four miles. From this place, west to the New river crossing, the rocks where exposed, are diabases both coarse and fine. These also extend further west in a number of outcrops to beyond the Popelogan river. Though much of the surface in this direction is covered by drift, no rocks other than eruptives of the more modern type were seen. On the old road to Spurr's mill, now abandoned, the only rocks seen are in a prominent ridge about half a mile north of the post-road, and are slaty grayish and dark felsites, cut by diabase, which extend southwesterly to the road.

East side of Lake Utopia.

On a road up the east side of Lake Utopia diabase rocks extend for nearly half a mile. Then a belt of the purple and gray slates of the Silurian (Letite series) occurs and has a breadth along the road of about a mile. Finally, these slates are terminated by a heavy ridge of fine-grained diabase, much shattered, commencing about one mile south of Missonette stream, where the granite of the St. George district makes its appearance, continuing north into the wilderness country and on to Red rock.

St. George village.

The village of St. George appears to be built on a ridge of massive green diorite which is well exposed at several places in the streets and at the bridge across the Magaguadavic river, below which bands of hard altered slate, having only a small area, are seen near the falls.

Westward from this, the road for some miles shows no rocks other than intrusives, diabases and felsites, with some granites to the north. These rocks occur in prominent ridges on both sides of the post-road which for several miles is made along the level surface of a broad grav-

el terrace. No slates of Silurian age were seen in this direction east of Digdequash river crossing.

The Tobique-Nipisiguit district.

After the completion of the work in Charlotte county, a couple of weeks were spent in the study of the rocks around the head waters of the Tobique and Nipisiguit rivers in the northern part of the province. Concerning the age of those rocks as depicted on the published map of that area, 1886, some doubt had arisen, owing to the finding in 1902, by Dr. Bailey and his assistant Mr. Johnston, of certain sandstones and conglomerate on the slope of Teneriffe mountain, supposed by Dr. Bailey to be of Silurian age An examination of this area showed that the mountain rocks consist of felsite, rhyolite and diabase, and that the sedimentary beds in question formed a limited outlier on the south-east flank at an elevation of about 388 feet above the Nipisiguit lake near the base. The outcrop is partly in a ravine and extends upward for about eighty feet with a surface breadth of about 200 paces. The lowest beds of the series are gray and brown shales containing plant stems, underlying sandstones which pass up into gray sandy conglomerates with pebbles of white quartz, light gray and purple and dark felsite, and small fragments of shale and sandstone, probably derived from the underlying beds. There is no visible alteration of any of these strata through the agency of the intrusive rocks of the vicinity. The general dip is north-westerly about 30 degrees.

Devonian outlier on Teneriffe mountain.

These rocks closely resemble the Devonian of the Gaspé coast and the upper portion of the Bay des Chaleurs. In their upper portion, where they appear to pass beneath the volcanic mass of the higher part of the hill, the conglomerate character is much less marked for several feet, consisting of a dirty green paste with a few scattered pebbles of volcanics, as if along a line of fracture. The felsite rocks underneath these Devonian strata are broken up for several feet, so that the outlier presents the appearance of having been affected somewhat by subsequent movements of the whole mountain mass.

Range of lsite hills.

The range of these felsite hills, which in many respects closely resemble certain felsite and other hills found in southern New Brunswick, extends in a north east direction from the west end of Nictor lake, and possibly from the south branch of the Tobique further west, eastward to Mount Latour which is about four miles west of Portage brook on the Nipisiguit river. They consist of feldspathic rocks of various kinds, with rhyolites, diabase and granite. East of this range the other hills to the Portage brook are entirely different in character, consisting of dark grayish, sometimes rusty hornblende and mica-gneiss and gneissic schist, portions of which closely resemble the Pre-Cambrian areas of eastern Quebec as seen in the hills about Richmond in the

eastern townships of that province. All the rocks of this lower group are schistose. Some are finely banded and much twisted, others are a heavy dark or blackish-gray schist, in places containing bunches and strings of white quartz. These rocks form the entire mass of the hills on the west side of Portage brook so far as examined. Crystalline rocks of Portage brook.

On the east side of the brook there is a large ridge known as the Acadian range, so styled by Prof. W. F. Ganong. The lower portion is a reddish granite made up of red feldspar and quartz, with a green mineral, probably hornblende, but with very little mica. In places this has a gneissic structure, but the upper portion and the main mass of the ridge consists of grayish mica and schistose gneiss like the hills west of the brook, and no granite was seen on the summit. These twisted schists also contain quartz veins, and are identical in aspect over a large area with Pre-Cambrian rocks of eastern Quebec. It will be seen, therefore, that the hills of the upper Tobique and Nipisiquit are of two kinds, and it is very probable that portions of those which have been described under the head of felsites are of a much later date than either those to the east or to the west. Similar felsite hills of widely different ages are also found in the southern part of the province. Schists of Acadian range.

As for the rocks of Nictor lake, where the southern limit of the upper Silurian is marked on the published map of that area, and where the felsite hills are coloured as probably Pre-Cambrian, the examination of these shows that the lowest beds of the sedimentary series, as seen on the small island in the upper portion of the lake, consists of green slaty schists, with scattered pebbles of reddish feldspar-porphyry, which are sometimes drawn out along the schistose planes. These schists are, in places, chloritic, and resemble closely some of the lower altered slates of the coast of Charlotte county. The dip is undoubtedly high and nearly vertical. Rocks of Nictor lake.

On the north side of the lake below Armstrong brook, a ridge of reddish and gray-weathering felsite comes to the lake from the north-east. About fifty yards west of this, a somewhat altered grayish Silurian slate forms a small ledge with a dip to the north-west, 65 degrees. At the rocky point on the north shore, opposite Visitors island, bluish gray, somewhat altered slates dip N. 30° W. $<65°$, and show in places a slightly schistose structure. It is possible, therefore, that the alteration of these slates has been effected either by the direct action of the felsites of Bald mountain on the south side of the lake or by the movements which have here affected a large area of country subsequent to the formation of these felsite masses. These Silurian rocks appear to lie between ridges of felsite or other rocks along this portion of the lake. Altered slates.

Further west an examination was made for several miles of the right-hand branch of the Tobique, in order to see the relation of the Silurian slates and limestones to the felsitic and diabase masses which cross that stream.

Right-hand branch of Tobique.

The Silurian rocks extend above the forks at Nictor for about four miles, when they are cut off by a ridge of hard green diabase and porphyritic felsite. This extends for half a mile along the stream, when the slates and limestone again form a band for several hundred yards to another mass of hard greenish-gray quartz-feldspar porphyry as below. There is no mistaking the intrusive character of the igneous rock at this point, the contact being sharply defined. Above this the rocks are largely igneous, with occasionally limited outcrops of slates. This sharp contact is at what is known as Little falls. The areas of slate above this on the stream differ in character from the typical Silurian strata. Large hills of felsitic rocks rise on both sides of the stream, and are probably the western extension of some of the masses seen to the east around the lakes at the head of the Tobique river. Some light is thrown upon the structure and relations of these Silurian, Devonian and felsitic rocks of the Nipisiguit by the section seen along the upper half of the Upsalquitch river. The rocky hills, already referred to along the Portage brook, extend for some miles north to Upsalquitch lake and preserve their schistose character throughout. From the lake north to the falls the stream is crooked and narrow with lower banks to the mouth of the south-east branch. Here, gray mottled feldspathic rocks occur, succeeded down stream by purplish-gray slaty beds with masses of diorite containing epidote. Thence, to the head of the falls, hard dense diorite, fine-grained, and in places slaty, occurs. This weathers a rusty brown and breaks into angular pieces. The falls extend in a ragged gorge for half a mile or more, the river flowing over a hard, green, conglomerate rock studded in part with pebbles of red and gray slaty felsite and some few of gray limestone, with a dip of N. 10° W. $<70°$. These rocks, in places, are filled with corals, crinoid stems, brachiopods, &c., of Upper Silurian types. The paste of the conglomerate is ashy looking, and thickly studded at times with fragments of apparently comminuted slates. These rocks appear to represent the lowest beds of the great Restigouche-Upsalquitch Silurian basin, since the slates, sandstones and limestones of that formation rest upon them.

Upsalquitch river section.

Devonian area

Descending the water to the forks of the north-west branch, slates, sandstones and limestones continue below the falls for several miles, showing a synclinal structure, the dip of which on the north side is S. 10° E. $<70°$, underlaid by hard, red, crystalline felsite, the lowest

beds of the Silurian in this direction being a conglomerate with pebbles of the underlying rock or of a similar character. Below this, for half a mile, hard, green, epidotic diorites outcrop, and, three fourths of a mile below the felsites, these are overlaid by coarse gray grits and conglomerates in which white quartz pebbles are abundant, along with pieces of jaspery-red felsite and slate, as also bands of shale and sandstone containing plant stems. These rocks are precisely similar to those observed on Teneriffe mountain and are Devonian in aspect. They form an overlying patch of considerable extent upon the Silurian rocks near the Ten-mile brook. They are cut across at several points by dikes of diabase which contain calcite and small zeolites with amethystine quartz. The Devonian rocks extend down stream for several miles and at the six-mile post are underlaid by slates and shales of Upper Silurian age, the dip of which is reversed again to the north-west, and these carry fossils characteristic of the formation. Red porphyritic felsites and rhyolites cut these strata, some of which show a well-defined flow structure and resemble certain portions of the felsites near the head-waters of the Nepisiguit river. Trap conglomerates also occur in the vicinity. Intrusive rock

The felsitic rocks outcrop at several points to within two miles of the forks of the north-west branch, below which Silurian strata again occupy the stream.

It would seem, therefore, that in the area under discussion, rocks of several horizons are met with; and that, while certain of the felsitic and rhyolitic masses have a comparatively modern aspect and closely resemble similar rocks which cut the Silurian of Charlotte county, other large masses more closely resemble in character and association the felsites of Kings and St. John counties which have been classed with the Pre-Cambrian series. It is probable, therefore, that the Teneriffe outlier of Devonian is like that of the Campbell river on the Tobique, and of the Upsalquitch, and does not form part of a large underlying series upon which the great range of felsite and other hills of the area are deposited. No indication of such structure is to be observed in any portion of the field observed by us during the season. Conclusion.

Fossil Occurrences and certain Economic Minerals in New Brunswick.

By Professor L. W. Bailey.

By instructions conveyed in a letter from the Acting Director of the Geological Survey, last May, I was requested to make geological explorations in the province of New Brunswick, giving my attention Introductory.

mainly to two subjects—(1) to the search for fossils, wherever in my judgment, these were most likely to be found in connection with the Pre-Carboniferous rocks of York and Carleton counties, and (2) to obtaining such information, relating to the economic minerals of New Brunswick, as would form a useful appendix to my report upon the subject published by the Geological Survey Department in 1899.

FOSSILS.

Rarity of fossils.

To the first of these objects about one month was devoted, the work embracing the examination of all the larger rivers and many of the minor streams in the counties above referred to. For the past fifty years these have been the subject of close examination by a large number of explorers, including Cresner, Hind, Ells, Matthew, Robb, Chalmers, Wilson and the writer, their results being contained in various reports already published. All these reports agree as to the rarity of fossils in the great slate belts traversing this region, and it was this characteristic that induced Dr. James Robb to assign them to the Cambrian system. Though later investigations have shown that his view was erroneous, it is still true that large tracts appear to be wholly destitute of organic remains. Hence the work of the past summer has not been very prolific of results in this direction. Still, facts have been obtained which place us in a better position to discuss the age and relations of the strata.

Rocks probably Cambro-Silurian.

As stated in my report of 1900, there is to be found in Monument settlement, Carleton county, a rather conspicuous belt of black graphitic slates, which are much disturbed and apparently intimately associated with a group of volcanic and semi-volcanic products extending thence to Woodstock. At Benton, in the same belt, numerous remains of the graptolite, *Dictyonema flabeltilorme* were found by the writer in 1900, while still further north-east on the Beccaguimic river, a distinctively characteristic Cambro-Silurian fauna, including Trilobites of the genera *Triuncleus* and *Harpe* had been observed by Matthew in 1880. As no organic remains had been found in the black slates of Monument settlement, the possibility remained that there might be an extension of another series of black slates which, on Eel river, a few miles to the eastward, contain Silurian forms of life. During the last season, remains of graptolites, apparently of Cambro-Silurian type, were found in the Monument settlement beds, and though, owing to the paucity of material and imperfect preservation, their age could not be definitely ascertained, their general aspect and the absence of the brachiopods which are found in the Silurian beds, seem to strengthen the previous conclusion that the beds in question are of Cambro-

Silurian or Cambrian age, and are a part of a belt of such rocks extending from the boundary of Maine to the headwaters of the Beccaguimic river. Careful search for confirmatory testimony of this theory was made in the bands of slates and quartzites south of Woodstock. This resulted in the finding of some interesting worm-tracks, to which Dr. Ami refers in the appendix.

Slates and quartzites.

Upon the southern side of the granite axis of York county, search was made among the slates and quartzites of Kingsclear, Prince William, Dumfries, etc., but nothing was found beyond those monograptoid forms previously discovered on Murray brook, which seem to denote the Silurian age of the rocks containing them. As it seemed desirable to ascertain definitely, if possible, the nature and age of the organic remains observed by Dr. Ells upon the south west Miramichi, the exposures upon this stream were examined as far above Boiestown as Rocky brook, that is to say, a breadth of about nine miles of Pre-Carboniferous rocks. These were found to consist mainly of quartzites and slates, the former being most conspicuous on the main stream, while the slates, often quite dark and pyritous, are best seen upon its tributaries. A prolonged search for fossils was unsuccessful, excepting at a spot about half a mile above Bird island. The strata here are unlike any others observed upon this river, in that though of a gray colour in the fossiliferous portions, they change somewhat abruptly, upon their strike, to a bright purple, thus recalling some of the strata upon the Nashwaak and its tributaries. The fossils in the gray portion of the rock are fairly numerous, but, except that they consist of strongly ribbed shells, probably of the genus *Orthes*, it is difficult to derive much information from them, as they are imperfectly preserved, much distorted and difficult to remove.

The cumulative evidence which these fossils afford as to the age of this great belt of slates and quartzites is important. When, many years ago, fossils of Siluro-Devonian age were found upon Rocky brook, a tributary of the Nashwaak, it was thought that the strata containing them must be simply a small outlier of such rocks enfolded in what were then supposed to be Cambro-Silurian slates. Since this view was embodied in the geological map published in 1886, graptolites of Silurian type have been found by the writer near Spring Hill, above Fredericton, and at other points, and although one cannot, from the occurrence of *Orthes* alone, predicate with certainty the age of the containing beds, it is much more probable that these are Silurian than Cambro-Silurian or Cambrian. In other words, large tracts of what were supposed to be of the latter horizon are now known to be more recent.

Di-prionidian forms.

The position of thefos siliferous strata upon the south-west Miramichi is very nearly upon the strike of the Rocky Brook beds, and both hold a similar position in relation to the granite, being separated therefrom by only a narrow belt, mostly of dark mica-schists. Both these and the slates and quartzites to the south have been followed, with little variation, from the Nashwaak to the Taxes river and thence to the south-west Miramichi while Prof. Ganong has recently observed similar mica-schists upon the head-waters of the Renous. The rocks in the vicinity of Bathurst, near the railway bridge over the Tattagouche river, contain graptolitic beds, from which a collection was made. The greater part was found to be too obscure for determination, but I was able to obtain a few specimens of definite character. These include di-prionidian forms, among which Matthew has recognized the following genera, *Diplograptus*, *Dicellograptus* and possibly *Dicranograptus*, indicating an horizon about that of the Llandeilo formation of Wales.

It may be noticed that these beds and certain black graphitic slates, not yet known to be fossiliferous, occurring above the Grand falls of the Nepisiguit are all north of the central granitic axis which crosses the last named stream at the Pabineau falls. In relation to the granite, they therefore occupy positions similar to those of the Beccaguimic river, Benton and Monument settlement in Carleton county, and thus appear to indicate that a belt of Cambro-Silurian age is probably contiguous from the settlement last mentioned, on the frontier of Maine, all the way to the Bay des Chaleurs. In this case, no change is required in the general map of this part of the province, though the occurrence of fossiliferous Silurian strata on Eel river, as observed by Wilson, at Waterville, as observed by the writer, and on the right hand branch of the Tobique, as observed by McInnes, indicates that areas of more recent age may also occur.

In character, the quartzites of the Nigadoo falls, Carleton county, strongly resemble those found accompanying the black *Dictyonema* slates of Benton, in Carleton county.

ECONOMIC MINERALS.

The economic minerals which particularly received attention included ores of iron, manganese and copper, with such non-metallic substances as coal, petroleum and gypsum.

Iron.

Two localities in particular have in the last few years attracted attention as possible sources of this metal. The first is upon the left bank of the Nepisiguit river, one mile and a half above the Grand falls. Large beds of ore are exposed, their width, as revealed by

numerous trial pits and trenches, being at least forty feet, while their length, as far as explored, is nearly two miles. They are strongly magnetic and, though obviously varying in the percentage of iron, are said to average 50%, the best being 58%. The ores are distinctly bedded, and with the associated rocks, which are light-weathering feldspathic slates, dip northward at high angles. Nothing was observed in connection with the beds to indicate their horizon, but, as black graphitic slates, which may be equivalents of the black fossiliferous slates of the Tattagouche river, occur about two miles and a half to the northward, they probably underlie these and are therefore Cambrian or Cambro-Silurian.

The removal of ore from this locality is at present impracticable, access being possible only by the river or rough wood roads through the forest.

Prospecting with magnetometer.

The second locality is in the district lying between the Lepreau river and New river in Charlotte county. Here, too, the ore is magnetite, and in the Report for 1899 it was stated that veins of this material occur on the farm of John A. Wright, about two miles west of Lepreau village. Their greatest observed thickness was, however, only eight inches, and considering the great hardness of the enclosing hornblendic schists, it was not thought at that time that the ore, though a rich one (carrying, according to analysis made by Dr. Hoffmann, 66 per cent of metallic iron, with no titanic acid) could be profitably removed. Quite recently, however, an exploration of the ground for several miles around has been made with a magnetometer, under the direction of Axel Anderberg, a Swedish expert, with the result that much larger deposits appear to be indicated, especially at a point about two miles west of the openings upon the Wright property. The instrument used was a Thalen-Tiberg magnetometer, and in accordance with its indications, duly plotted from observations for vertical and horizontal magnetic intensity and declination, the probable location of the principal vein has been determined, and a shaft, about fifteen feet deep at the time of my visit, was being sunk thereon. As at the Wright farm. the enclosing rocks are hornblendic schists, and in the vicinity of the pit these are all so charged with magnetite as to readily affect the magnet. The course of the beds, with which the vein conforms, is about N. 70° E., and they dip south at an angle of about 80°.

Wright property.

Drilling operations have also been undertaken as the result of magnetometer observations upon the Wright property, reaching a depth of about one hundred feet. The isodynamic curves in each case indicate a considerable body of ore, and though its quality is not indicated by the instrument, it may reasonably be assumed to be equal to that of

the veins which appear at the surface. One of these, eighteen inches thick, was analysed by Mr. Anderberg and gave the following result :—

Fe.	64·54	S.	·014	Mg.O	·85
Si.	6·65	$Al._2 O._3$	1·59	Mn.	·19
P.	·023	Lime	·69		

Analysis of one sample of ore gave ·10 of titanic acid, an amount too small to affect the ore injuriously. The work now carried on is being conducted solely on the basis of the magnetometric observations, a method of exploitation quite new in this part of the world, but which, in Sweden and elsewhere, has been found to give very satisfactory results.

Similar ores, with similar associations, have been observed at New River and on the south shore of Deer island ,and it seems probable that the same method can be profitably employed at these places.

Manganese.

Manganese.—No new discoveries of importance relating to this metal have been made since the date of the Report of 1899. Some further attempts have, however, been made towards the development of deposits previously known. Thus, at the falls of the Tattagouche river in Gloucester county, some excavations have been made in the red manganiferous slates there exposed, revealing numerous veins of highly crystalline pyrolusite, but none of these, so far as the writer could ascertain, are of sufficient thickness to warrant profitable extraction. Considering, however, the area over which these veins have been observed, and the fact that the larger part of this is covered by superficial deposits, it is possible that thorough prospecting would disclose deposits of considerable extent and value.

At Dawson settlement in Albert county, the deposits consist of a remarkably fine quality of wad ; expensive works were erected for briquetting, but this method has been found unsatisfactory and little has recently been done.

Copper.

Copper.—Of the three localities of interest in connection with this metal, only one could be visited by the writer. This was the property of the Intercolonial Copper Company, near Dorchester in Westmoreland county.

In the report of 1899 the ores of this locality were described as consisting of gray sandstones and conglomerates belonging to the lower part of the coal formation, through which copper is disseminated mainly in the form of copper glance or chalcocite but partly as chalcopyrite, malachite and azurite. The chalcocite is found both as small veins and scattered granules, but no distinct lode occurs. This, how-

ever, was not regarded as essential, the plan of working being to crush the entire mass of rock and then, by chemical and electrolytic processes, to extract whatever copper it contained, Since the date of the report referred to, extensive works have been constructed, the plant costing, it is said, over $600,000. This is sufficient proof of the faith of the authors of the enterprise in their undertaking, but since the death, about eighteen months ago, of the first manager, Mr. Philips, no work of any kind has been done.

Copper mining has been attempted on the Bay of Fundy shore in eastern St. John county. Ores of copper have long been known to occur in the Pre-Cambrian rocks of this coast and exploratory work has been carried on, especially in the vicinity of Goose creek, in the county named, and around Alma, in Albert county. At present, operations are confined to the vicinity of Goose creek where a tunnel, about five hundred feet in length, has been driven into the face of the cliffs which here form the shore. Small quantities of bornite, chalcopyrite and malachite have been removed. Transport difficulties and the dangerous wharfage constitute most serious drawbacks, the buildings and the ore having been more than once washed away by storms. It is said that the average of the ore is about eight per cent of metallic copper.

Coal.—The comparative scarcity of mineral fuel and the enhanced price resulting therefrom have not only proved a stimulus to the energetic working of known coal deposits, but have led to a reopening of the whole question of the productive capacity of the New Brunswick coal fields. Coal.

As to actual operations, these are at present practically confined to two distinct areas, viz: (1) that of the Grand lake district, and (2) that of Coal Branch in Kent county.

The most noticeable feature in the Grand lake district is the increased facilities for removal, owing to the completion of a railway from Norton in King's county, a station on the Intercolonial railway, to Chipman, and its extension to Newcastle and Minto, the latter a new settlement and terminal in the very heart of the coal region. From this terminal, short branch lines radiate to most of the important coal fields. In addition to this, about the same amount as in former years is hauled from other pits to the shore of Grand lake, to be thence transported by wood boats to St. John or Fredericton. The coal removed by rail alone is, owing to less frequent handling, brought to market in better condition than that transported by both rail and lake.

All the mines are worked independently by vertical shafts from twenty-five to thirty feet in depth, the thickness of the seam varying from twenty to thirty-two inches, in the latter case usually including a shaly parting between twenty-six inches above and four inches below. The coal at the pit's mouth is worth about $2.00 per ton.

An interesting feature connected with the works at Minto, and confirming earlier observations, is that the diamond drill boring about one mile west of Minto station, passed completely through the coal formation at a depth of less than three hundred feet, the cores brought to the surface being bright glossy green and purple slates with quartz veins such as are elsewhere known to underlie the coal measures. There seems to be, therefore, no probability of any seam of coal being found below that now worked near the surface.

Coal Branch District, Kent County.—Though, as indicated by its name, the area traversed by Coal Branch, a tributary of the Richibucto river, has long been known to contain seams of coal, it is only recently that systematic mining has been undertaken. This was largely due, as at Grand lake, to the transport difficulties, but again as at Grand lake, the conditions have been wholly changed by the construction of a railway.

The works at Beersville are situated upon the left bank of Coal Branch, here forming a perpendicular bluff of one hundred and seventy-five feet, the seam being one hundred and twenty-five feet below the surface. In this seam two tunnels have been driven, one of them over one thousand feet in length, with numerous lateral levels. These are remarkable for their dryness and freedom from gas, neither pumping nor artificial ventilation being necessary. The roof of the galleries is surprisingly regular and firm, being a horizontal compact shale about two feet in thickness, while the floor is an under clay about three feet thick. The shale contains numerous well-preserved fossils; above the shale are fine gray sandstones, well adapted for building purposes. The thickness of the seam is eighteen inches.

The works at Mt. Carlisle are on the right bank of Coal Branch, three miles above those at Beersville, but the situation is less favourable for work, and the seam is thinner, being only sixteen inches, while a pumping engine is required to keep the mine dry.

The Canadian mine, which gives employment to about fifty men, possesses coal essentially the same in character as that of the seams at Grand lake, and, considering the horizontal attitude of the beds at the two points and the general resemblance of their organic remains, it may well be supposed that they represent about the same horizon.

The coal is free burning, excellent for steam purposes and leaves very little ash.

Petroleum. Since 1859 oil has been known to exist in Albert and Westmoreland. At the time of the working of the Albert mines, petroleum was said to ooze in places from the bituminous shales which were the carriers of the material and, in connection with the same shales, oil was said to issue in a spring in the rear of St. Joseph's college near Memramcook. At Dover, inflammable gases were found to bubble through the water of brooks, and at one point small quantities of maltha or mineral pitch were observed. At that time the mineral albertite was usually known as Albert coal and commonly regarded as related to ordinary bituminous and cannel coals, but even then there were those who maintained that it was more nearly related to asphaltum and the group of the hydrocarbons. This latter view gradually gained ground until it became generally accepted that albertite was of the nature of an oxydized mineral oil. As a natural sequence of this belief and from the fact that the apparent supply of oil was so small, it was supposed that the greater part of any petroleum which may originally have existed in the region had, by oxidation, been converted into albertite. This view appeared to be confirmed by such random borings as were made prior to the year 1899, when an investigation of the field was undertaken under the advisory direction of Prof. N. S. Shaler of Harvard University. The supposition upon which these investigations were based was just the reverse of that previously entertained, or to the effect that only a portion of the original petroleum deposits had been converted into albertite, as the result of exposure and oxidation, while it might be the case that other large quantities, protected from such change by the superposition of impervious strata, had retained their primary form. Later results seem to show that this view had some substantial basis. At all events, drilling operations over considerable and widely separated areas have led to the obtaining of oil in quantities exceeding what was at one time thought probable. Petroleum.

The two most important areas at present being exploited are Dover and St. Joseph. At the latter place active operations were first begun, and ten or twelve wells are said to be regularly pumped. During the last winter, according to the statements of the manager, about 2,500 barrels of oil have been pumped. A factory with a capacity computed at 150 quarts per diem has been erected for the manufacture of nitro-glycerine.

At Dover about twenty wells have been opened, it is said, which have, in some instances, given a yield of from twenty-four barrels daily.

The oil is reported to come to the surface alternately with a very strong brine, from which it naturally separates in the tanks as the result of its lower specific gravity.

The crude oil is of a dark green colour, its composition being :—

	Per cent.
68 to 70 gravity naptha	5·5
Refined oil distillate	27
Wax distillate	37
Cylinder stocks	29·4
Loss	·008

The area of the property upon which active operations have been carried on is about twenty-four square miles, and lies between the tidal waters of the Petitcodiac and Memramcook rivers.

The finding of petroleum at Memramcook and Dover naturally suggests inquiry as to its possible occurrence elsewhere. It is reasonable to assume that, both oil and albertite being associated with the Albert shales, the distribution of the latter affords the best guide as to the regions which are most likely to yield the former. The distribution of these shales, in one belt at least, has been fully discussed and illustrated in an earlier report of 1876-77* in which they are shown to be recognizable and to contain veins of albertite at different points in Albert and Kings county as far westward as Apohaqui station, a distance from the Petitcodiac of over fifty miles, while at the old Albert mines, as already stated, oil was said to issue from the sides of the levels. Borings made on the western side of the Petitcodiac river in Albert county, three miles north of Hillsborough, are reported to have shown the existence, at two points, of oil-bearing sands. In an easterly direction it is probable that the bituminous oil-bearing shales which, between Memramcook and Dorchester, pass beneath the Millstone grit and higher members of the coal-formation, retain their character for some miles at least, and owing to the thicker covering may be more productive than the beds less deeply capped. A second belt, parallel with the above, is also indicated by exposures along the north side of Indian ridge, eight miles north of Moncton and sixteen miles north of Dover and Memramcook, but the shales so far observed at this point are less bituminous than those of the districts last named, and it is not known to what extent they underlie the extensive Carboniferous tract to the north. Borings near Coal Branch in Kent county, about midway between Beersville and Mt. Carlisle, are reported to have struck oil and gas at a very moderate depth. Should this report be confirmed, it would, by indicating the existence of oil-bearing

* Report of Progress. Geol. Surv. Can. 1876, p. 351 et. seq.

strata beneath the rocks of the great central coal-basin, increase enormously the area from which possible future supplies of petroleum in New Brunswick may be drawn.

Dolomite.—With the advent of the pulp industry in New Brunswick the source of supply for magnesian carbonates became an important question. At first these carbonates were brought, at considerable expense, from Ohio, but with the establishment of paper mills near St. John it became desirable to know whether a nearer source might not be obtained in connection with the limestones occurring so largely in the environs of that city. To determine this point, I was, in 1899, directed to make some investigations as to the occurrence of dolomites in the quarries near St. John, with the result that rock containing from 35 to 45 per cent of magnesian carbonate was found to be readily obtainable at several points. This fact was alluded to in my summary report of that year. It had not then, however, been put to the test of actual trial. It is gratifying now to report that the tests since made, both at Mispec and in Fairville, have been most successful, and that the material of this nature is now wholly drawn from their local sources, mainly from the quarries of Randolph and Baker at Randolph. Dolomite.

APPENDIX.

PRELIMINARY LIST OF THE FOSSILS COLLECTED BY PROFESSOR L. W. BAILEY FROM VARIOUS LOCALITIES IN THE PROVINCE OF NEW BRUNSWICK DURING 1904.

By H. M. Ami, Palæontological Division.

A.

Fossils from the black carbonaceous and graptolitic shales from near the railway bridge on the Tête à Gauche river, near Bathurst, Gloucester county, New Brunswick.

1. *Diplograptus foliaceus*, Murchison. Several fragments of the polypary of a diprionidian graptolite, which appears to be more closely related to this species than to any other known to me, occur in a rather imperfect condition.

2. *Diplograptus truncatus*, Lapworth, or a very nearly related form.

3. *? Lasiograptus, sp. indt.* Too badly preserved to identify with any degree of certainty.

4. *Climacograptus bicornis*, Hall. Three imperfect polyparies in the collection are referred to this species with but little doubt.

5. *Cryptograptus tricornis*, Carruthers. A number of very even-sided or parallel-margined fragments are seen, suggesting no other

than this well-known species, at times showing the free virgula, but in no instance displaying the distal extremity which is crucial.

6. *Dicellograptus sextans*, Hall. Several individuals.

7. *Dicellograptus anceps*, Nicholson, or a very closely related species.

8. *Orthograptus quadrimucronatus*, Hall. Two polyparies occur in the collection. I cannot distinguish these from typical examples occurring in other localities in Ontario and Quebec.

9. *? Didymograptus superstes*, Hall. This form is referred with considerable doubt to this species.

10. *Leptobolus, sp.* A minute round or orbicular brachiopod which appears to be referable to this well-known Ordovician genus.

Geological Horizon.

The above assemblage of forms suggests at once an Ordovician fauna belonging to one of those zones of graptolites occurring along the Saint Lawrence and the Hudson rivers. Similar forms from rocks of presumably the same age have also been found in Penobscot Co., Maine.*

These black and at times pyritiferous shales appear to be synchronous or homotaxial with the shales, of Norman Kiln, near Albany, N.Y.; of the City of Quebec; of the north shore of the Island of Orleans; of the Marsouin river and of numerous other localities in the Gaspé Peninsula. They find their equivalent in Europe in the Llandeilo rocks of Wales, the Moffatt shales of Scotland and the County Down shales of Ireland.

B.

Loc.—From a black indurated, carbonaceous and graptolitic shale from Monument Settlement, York county, New Brunswick.

Collector :—L. W. Bailey, 1904.

In this collection are two slabs of an indurated shale, one of which is evidently the counterpart of the other, on which two distinct but obscure graptolitic fragments occur.

1. *Diplograptus, sp.*, or other diprionidian graptolite.

Exhibits an imperfect portion of a polypary with ten hydrothecæ in the space of ten millimetres. The hydrothecae are inclined at an angle of about 50° to the axis of the polypary.

2. *Leptograptus* or *Monograptus, sp.*, Too obscure for identification.

* Amer. Journ. Sc., Vol. XL, p. 153, 1890. Ibid, Vol. XXII, p. 434, 1881.

HORIZON.

It is impossible to state definitely to what horizon these shales may be assigned. Should the fragment resembling somewhat a Monograptus be truly referable to this genus, as future collections may reveal, the shales will fall naturally into the Silurian. A larger and better collection from this locality is desired.

C.

Note on a small collection of obscure fossil organic remains from above Lower Birch island, S. W. Miramichi river, New Brunswick collected by Prof. L. W. Bailey, 1904.

The fossils examined are all fragmentary and in a very poor state of preservation. They occur in what appears to be a rusty-weathering gray, glossy schistose rock which effervesces at times in cold hydrochloric acid. The precise geological horizon could not definitely be determined with the material at hand. It is most desirable to obtain from local ities such as this, as complete a series of the organic remains as possible. These schists may be Silurian.

Amongst the forms which appear to be obscurely represented in the collection, the following are cited :—

1. *Orthis, sp. indt.*, possibly a *Rhipidomella R. hybrida*, Sowerby but too obscure to state with certainty.

2. *Rhynchonella, sp.*, a form which resembles the ribbing of *Wilsonia.*

3. *Homœospira, sp.*, too imperfect to identify at all clearly.

4. *Lingula, sp.*, a fragment of the test of a linguloid shell which may or may not be referable to this genus.

5. *Spirifer, sp.*, several costæ of a brachiopod which appear to poin to this genus rather than to any other.

D.

Tapley's Mill, Woodstock, New Brunswick. Collected by Prof. L. W. Bailey, 1904.

In a drab and rusty-gray-weathering glossy and indurated slate, are seen a number of tracks or trails of some organism probably those of some annelid or other related form.

EUGYRICHNITES MINUTUS, N. G. AND N. SP.

A number of minute tortuous tracks or trails of worm-like organisms appear upon the surface of the slab from Tapley's Mill near

Woodstock. These are all probably made by the same creature whose slender body was dragged over the surface of the smooth fine-grained siliceous mudstone at the time when these slates were being deposited. They are very simple in structure, consisting for the most part of a linear trail across which a number of closely set parallel lines appear, varying in number from twenty-five to thirty, in ten millimetres. These tracks or trails are about one millimetre wide.

These ribbed trails are accompanied by others which appear to be quite smooth, but they are evidently merely covered over by the fine sediments of which the slate is composed.

Indications of burrows, one of which measures fully 1.25 millimetres across, also occur on the same slab,

At first sight, these minute tracks suggest the *Gyrichnites* tracks described by Dr. Whiteaves * from the Gaspé Sandstones, but they are evidently made by a very different organism.

It is impossible to determine from the material at hand to what geological horizon to refer the slates from Tapley's Mill.

These trails do not resemble any met with as yet from different geological horizons in Canada, and consequently a new designation is offered for the sake of reference.

NOTE.

In connection with the fossils from Locality A, it may not be uninteresting to note the species listed by an eminent authority on graptolites in Britain.

List of species of graptolites determined by Professor Lapworth from the collection sent him by the writer some years ago, obtained along the Tête à Gauche river, Gloucester county, New Brunswick, by Dr. R. W. Ells :—

Lasiograptus mucronatus, Hall.

Climacograptus bicornis, H, with branch of *Dicranograptus*.

Cryptograptus tricornis, Carruthers.

Diplograptus aculeatus, Lapworth, or *D. Whitfieldi*, Hall.
" cf. *D. Whitfieldi*, Hall.
" allied to *D. quadrimucronatus* H.
" *foliaceus*, Murchison.
" sp.

* Trans. Roy. Soc. Canada, Vol. 1, Sect. IV, 1882, p. 109, Art. XI, issued, 1883, plate XI.

The Counties of Cumberland, Hants, Kings and Annapolis, Nova Scotia.

By Mr. Hugh Fletcher.

Introductory.

Mr. Fletcher spent the winter of 1903-04 in compiling plans and sections from surveys made by himself and his assistants as recorded in the Summary Report for 1903 pages 160 to 174. He was assisted during the winter as well as in the field by Mr. M. H. McLeod and Mr. A. T. McKinnon.

District examined.

He left Ottawa on June 27, to continue fieldwork in Nova Scotia, and remained there until the end of the year. Early in the season Mr. McKinnon made a survey of the Joggins shore from Two Rivers, to Seaman Millbrook to fix more precisely the dip of the various strata of this great section. He also surveyed various branches of Little river and other small streams in the neighbourhood of Oxford. He examined a deposit of hematite ore occurring about half a mile south of Grand Pré railway station. A specimen of the ore was examined by Dr. Hoffmann. The deposit occurs in small veins at the contact of Triassic sandstone with dark gray shales and flags of the Horton series. For the greater part of the season, however, Mr. McKinnon was associated with Mr. M. H. McLeod in a survey along the great dike of the North mountain and the brooks from Ross Creek in Kings county to Parker cove in Annapolis county, a region wholly occupied by trap with small veins and masses of zeolites, amethyst, magnetite, native copper, &c. An amygdaloidal variety seems to underlie gray, more massive trap on the shore and in the brooks. The scenery of this shore is picturesque and has for many years continued to attract hundreds of summer tourists. From the low valley of Triassic rocks extending from the South mountain, the North mountain rises steeply as at Blomidon and the Lookoff, the ascent from the south being everywhere steep and short, while the descent northward to the Bay of Fundy is about four miles, both slope and escarpment showing frequent outcrops of trap.

Iron ore.

Coast from Scots bay to Annapolis basin.

At Morden (French Cross) this trap is full of large amygdules. On the Big Hollow road, between Sheffield mills and Baxter harbour, red Triassic shales and flags, with a low dip, sometimes towards the North mountain, sometimes away from it, are in contact with coarsely crystalline trap, succeeded by white-spotted amygdaloid: thence for a great part of the distance to the shore, amygdaloidal and other varieties in great sheets have a low undulating dip towards the shore, the structure being

precisely similar to that of the same range described by Professor Bailey near Digby and at Blomidon*.

Baxter harbour.

At Baxter harbour, trap of various dark colours, fine in texture, not crystalline but in many parts globular, slopes gently seaward in thick sheets, broken by east and west joints and fissures containing quartz in veins and amygdules. This is a boat-harbour with a narrow gravel beach and rocky indentations, photographs of which are included in the collection of views entitled "The Evangeline Land." At Black Hole the trap is inclined to be basaltic and splintery.

Supposed fossils.

From Baxter harbour, eastward along the shore to Ross creek, the trap lies in sheets of variable thickness and includes beds of amygdaloid. Its contact with small patches of calcareous shale and sandstone shows the latter greatly altered and full of veins and druses of calcite and other minerals. The cylindrical and conical masses, irregular in size and shape, supposed by some observers to be fossils, are siliceous and are, apparently, like veins of jasper and milky quartz in their mode of formation. One very persistent layer of jasper follows nearly the line of contact with the trap, but at certain points is separated from it by argillaceous shales; others follow the bedding of the shales, with which, in places, the trap is intimately associated in the same layers, both being decolourized. One end of a block of red altered sandstone consists of trap. In this vicinity is found beautiful black crystalline quartz in vugs or hollow barrel-shaped masses. Westward from Baxter harbour sheets of light gray trap form good productive soil as far as the millbrook, beyond which the trap is crumbly, jointed and globular in irregular layers, one of which contains small cylindrical concretions, gashes and minute veins of amethyst and milky quartz.

Sheets and rocky reefs of flaggy trap, in part amygdaloidal, crumbly and globular, usually gray and blackish, with red or chocolate patches, extend in cliffs for some distance. In the main mass of the amygdaloid the amygdules are generally small, but large vein-like aggregations of zeolites occur in the bedding-planes in which are also beds of red argillaceous shale not more than one inch in thickness.

A little further along the shore, a thick layer of dark massive trap, globular and in part crystalline, rests on and among reddish amygdaloid which is apparently horizontal, and includes veins of zeolites, there being no definite lines of separation between the different varieties.

Near Race point, amygdules are arranged in horizontal bands at short intervals apart. No basaltic or broadly crystalline trap is met

* Geol. Surv. of Can. Vol. IX. Pt. M. p. 24; and Geol. Surv. of Can. Summary Report for 1901, p. 214.

with, although blackish finely crystalline trap is cut by small joints and fissures.

At Halls harbour the reddish amygdaloid of the beach is overlaid by a bed of blackish and gray massive trap, so like that to the eastward that it might be a question whether it and the amygdaloid are not at the same horizon and in the same relation to each other all the way from Scots bay. Hall harbour.

Near Chipman brook, lenticular deposits of red marl in red amygdaloid have been used for paint: bands of zeolite also appear in the bedding. The road that runs from this point to the top of the mountain shows many outcrops of gray amygdaloid, dipping towards the sea. South of the summit and also on Blackrock mountain, small veins of magnetite, like those of Gerrish mountain, have been exploited. Magnetite. On the steep descent of the hill towards Cambridge station, the trap is succeeded by red clay-shales of the Trias, which give place further south to more sandy rocks. At Clarence, north of Bridgetown, the trap escarpment is also steep, and red Triassic sandstones and shales reach nearly to the summit, from which the land slopes several miles to the shore at Hampton, over large masses and sheets of globular, jointed trap, unlike the gray and blackish, coherent, crystalline variety of the escarpment which breaks along prismatic three to six-sided planes.

On the road from Granville ferry to Parker cove, a similar section is presented of Triassic sedimentary rocks succeeded by trap on a steep ascent, to the north of which lie nearly horizontal sheets of gray, fine, globular trap similar to that near Hampton. Westward from the cove, there are good exposures of this trap, in layers of various thickness, cut by minute veins or threads of jasper but no amygdaloid; similar traps are exposed eastward to Hampton. Contacts of igneous and sedimentary rocks.

At Rossway, on Digby neck, Triassic red sandstone and argillaceous shale are again found in nearly horizontal beds along the shore of St. Mary bay, at the foot of an escarpment that still follows the trap dike. The search made for coal here and in the Cambrian dark slate of Marshalltown was, of course, abortive.

In the prosecution of this survey, Dr. Poole and Mr. Fletcher, on October 26th made a section of 1516 feet of Silurian or Lower Devonian rocks which underlie Triassic sandstone in Messenger brook. The dip of these rocks nearest the contact is southerly, while upstream it is northerly, nearly vertical throughout but assumed to denote the syncline described as repeating the iron ores of the district. The strata Section of Messenger brook.

are* for the most part gray, but at the north and south ends of the section red and mottled slates are found, those lowest in the brook holding, according to Dr. Ami, *Fenestella*. Running nearly in the bedding is one of the greenish-gray dikes or layers of diorite so frequent among these rocks, at the contact of which with the gray slates, both above and below, there is an accumulation of whitish quartz. Near this dike, large fossil shells were collected by Dr. H. M. Ami.

Bore-holes at Abercrombie.

The bore-holes referred to last year were continued in 1904. That at Abercrombie‡ was lost at 1,900 feet, but another begun alongside had reached a depth of 2,135 feet in April 1905.

At Spicer cove.

The hole at Spicer cove† at a depth of about 898 feet, passed out of conglomerate into Devonian compact and granular splintery felsite and quartz-felsite, in which it was discontinued as hopeless at 944 feet. Farther away from this rim of the carboniferous basin, however, in the neighbourhood of East Apple river and Sand river, boring is perhaps more likely to be successful.

At Fullerton lake.

No change was observed in the material cut in the bore-hole north of Fullerton lake to 2,330 ft. but a seam of coal, said to be nine feet thick, is stated to have been cut at 2,350 ft.

A pumping examined on December 23, 1904, yielded chocolate-coloured, fine sand mixed with red clay. Progress was very slow because of the large quantity of water in the hole below the six-inch casing put in to a depth of 815 feet. This water was salt. Pebbles falling into the hole and removed by the pump consisted of bluish and whitish quartzites, red sandstone, felsite and other Devonian rocks, and one cannot fail to realize the enormous amount of denudation necessary to form conglomerates of such thickness.

At Springhill junction.

An interesting section of a drilling made by the Intercolonial railway at the water-tank immediately east of Springhill Junction station-house, was obtained from Mr. John U. Ross of Pictou. The position of the bore-hole will be readily understood by reference to the map of Springhill that faces page 392 of the Summary Report for 1902. An abstract of the section in descending order is as follows;—

	Ft.	In.
1. Red argillaceous shale with three thin bands of reddish sandst...	273	0
2. Gray and reddish sandstone and argillaceous shale.....	267	0
3. Conglomerate.....	0	6
4. Gray coarse-grained sandstone.....	85	0
5. Red argillaceous shale.....	40	0
6. Gray sandstone and argillaceous shale in alternate layers.....	53	0
Total depth of bore-hole.....	718	6

* Sum. Rep. for 1902, p. 399; Vol. IX, Part M. pages 94 to 97; Acadian Geology, pages 563 and 571; Supplement 1891, page 20.

‡ Sum. Reps. for 1902, p. 391, and for 1903, p. 161.

† Sum. Rep. for 1903, p. 162; Trans. Min. Soc. of N. S., Vol. VIII, p. 125.

North of Trenton.

Mr. Isaac McNaughton's bore-holes, one mile and a half north of Trenton, Pictou county, are stated to be 660 and 875 feet deep, respectively*. Another, further south, recently bored by him a short distance south of Loudon brook, has reached a depth of 647 feet and cut black and blackish-gray argillaceous shale, full of ostracods and of spines, scales, teeth and coprolites of fishes. This resembles the black shale of Rear brook and Trenton‡ described by Mr. Henry Poole. It is associated with light-gray and whitish sandstone, generally fine, but also coarse and even conglomeratic, streaked with layers of carbonaceous or coaly matter. Among these are also beds of gray argillaceous shale with nodules and plates of ironstone; of red and green, purple and gray mottled marls, in part concretionary, spotted with concretions of pyrite; of crumbly fireclay, containing rootlets and reddish concretionary limestone-conglomerate. A section of these borings is promised by Mr. McNaughton.

Surveys in Cumberland county.

Mr. Fletcher again spent a great part of his time in a further examination of the district referred to in the Summary Report for 1903, pages 163 to 167 and shown on map sheets 59, 60, 61, 62, which are now partly engraved and will soon be issued. No reference to this work need here be made, since it will be incorporated in these maps. In connection with it, discoveries of coal recently reported at Mount Pleasant, Beckwith and Roslin were investigated and found to be of no importance.

Galena of Aspy bay.

On July 26 a visit was made to the galena deposit just inside the point of the sand bar at the mouth of the South pond of Aspy bay§ lately worked by Messrs. H. C. Corson, Fred. E. Carré and Captain Gordon. It lies on a little brook that flows into a saltwater marsh east of the house of Mr. Michael Fitzgerald, at the contact of a great mass of Lower Carboniferous limestone with Pre-Cambrian black gneiss and pegmatite-rocks, described in the report for 1882-84, page 19H, and page 52H, although this particular patch was omitted in colouring sheet No. 2. The mode of occurrence is like that of the ores described by Dr. Poole† in his paper on "A Mineralized Zone in Nova Scotia," which include the galena of Pleasant bay (sheet 3), Smithfield and Pembroke (sheets 36, 48 and 57).

The associated Carboniferous rocks extend from a spring on the shore west of Fitzgerald's house for about three quarters of a mile eastward, and are again met with in Piney brook and on the Ingonish

*Core Drilling in Nova Scotia, Mines Dep. of N. S., pages 40 and 41.

‡Trans. N. S. Inst. Sc. Vol. I, Part 1, page 39, 1863.

§ Sum. Rep. for 1903, page 173.

† Jour. Can. Min. Inst., Vol. 1, p. 227.

road. At Piney brook, a quarter of a mile west of the mine, the basal beds consist of gray, flaggy, calcareous grit and conglomerate passing upward into a limestone which holds a few large pebbles of pegmatite and gneiss; while, overlying the limestone east of the mine, there are thick bands of gray and red marl, sandstone, gypsum and limestone.

The ore deposit differs from that of Pleasant bay in having but little vein-stone, the galena occurring in lenticular plates and masses from one eighth of an inch to six inches in thickness, usually bedded near bluish-gray, soapy shales in the limestone, and mixed with pyrite in grains and botryoidal aggregations. The pyrite, on exposure, rusts and discolours the whole mass, but fine specimens of galena are obtainable.

The line of contact is nearly vertical, apparently faulted; the belt next the granite is crushed and in part composed of gossan derived from sulphides, perhaps originally segregated along fault-fissures. From other contacts in the neighbourhood no ore was obtained, although it is reported to have been found in some quantity on the Ingonish road.

A quantity of loose ore was found near the surface at the little brook mentioned above. The ore was followed by shallow pits now caved in. More recently, a well-timbered vertical shaft, 9 feet by 6 feet, has been sunk about forty feet, and from it a level, 7 feet by 4 feet, has been extended about twenty feet north-easterly along the granite, and a cross-cut of the same size driven ten feet into the limestone immediately east of the brook. From this excavation, about two tons of picked ore were taken, of which a large sample was sent to Dr. Hoffmann for analysis. By Mr. F. H. Mason, who made a report on the deposit, this is estimated to contain about thirty per cent of lead, representing not more than three per cent of lead for the total amount of rock mined. Mr. Mason concludes, also, that nothing has been found to warrant further development, but advises, if further development be undertaken, that the existing shaft be sunk to a depth of eighty or a hundred feet and that levels be then driven in both directions on the course of the vein. The cost of this work should not be, he thinks, more than ten dollars per foot for sinking and three dollars per foot for driving. A house for the men, a small boiler, engine and pump are at the mine.

Coal in Hants county.

Examinations were made in the district from South Maitland and Shubenacadie west, as far as Rawdon and Kennetcook Corner, in order to define more precisely the boundaries of rock formations on certain map-sheets now in the hands of the engraver. One of the small coal

seams of this district, reopened lately in the Gore, yielded on analysis by Mr. F. H. Mason.

Moisture lost at 110°C	1.90
Volatile bituminous matter	23.90
Fixed carbon	49.40
Ash	24.80
	100.00
Sulphur	0.15

Evaporative power: one pound of dry coal will, upon complete combustion, evaporate 10.89 pounds of water.

The coal burns with a long luminous flame, gives a compact coke and leaves a gray ash.

Quarries.

The associated shales are, like those of Horton and Gaspereau, blackish and bluish-gray with occasional red layers. North of, and overlying, these shales is a great band of gray, coarse and fine sandstone, upon which several quarries were opened to procure building stone for the culverts and other structures of the Midland railway; this gray sandstone series is in turn overlaid by the Lower Carboniferous plaster and limestone formation of Kennetcook valley and the country to the northward.

Boring at Morien mines.

In November Mr. Fletcher visited the boring at Port Morien, made with one of the government calyx-drills to test the thickness of the coal seams underlying the Gowrie seam at present worked there.

Broughton colliery.

At the same time he examined the Cape Breton Iron and Railway Co's. mine on the Tracy seam. This seam was traced by the late Mr. E. T. Moseley*, for six miles westward from the old workings at Mira bay. The present openings are about one mile and a half east of the Moseley pits and bore-holes and near the east end of Loon Lake (Map-sheet No. 135), a district now called Broughton. Two slopes are in operation and a third is soon to be begun, a quantity of coal has been extracted, and extensive surface works constructed. Three coal cutting machines are now in use in the pit. At one point, the coal was found to be about five feet eight inches in thickness with a small parting about a foot from the bottom; the quality is said to be excellent. The mine is to be connected with the Sydney and Louisburg railway by a branch line about two miles long, and large developments are to be carried out in 1905. A little work has also been done nearer Sydney at the old Cossitt pits.

Cossitt mine.

Barachois iron mine.

During the summer of 1904, Mr. W. F. Jennison mined 500 tons of iron ore from the Greener-Ingraham area at the Barachois† and

*Sum. Rep. for 1903, page 174. Trans. Min. Soc. of Nova Scotia, Vol. IV, page 26.

†Geol. Surv. of Can. Vol. IX, pt. A, p. 97.

shipped it to the Dominion Iron and Steel Company's works at Sydney. The shaft or pit from which this ore was taken was put down thirty feet, on the contact between the Carboniferous-conglomerate and Cambrian slates, and showed ore ten feet in width when the work was stopped. The average analysis of the 500 tons as given by the Dominion Iron and Steel Company was 44.43 per cent of iron, 16.10 silica. The low iron and high silica is said by Mr. Jennison to be due to the ore being mixed with slate from the wall. (Map Sheet No. 134).

Firebricks.

Reference has frequently been made to the fireclay of Coxheath * suitable for the manufacture of firebricks and pottery, as proved by the experiments of Dr. G. C. Hoffmann, in the laboratory of the Geological Survey, thirty years ago. During the past few months, some work has been done on this deposit by Mr. Graham Fraser, of the Dominion Iron and Steel Company; about 300 tons have been quarried, part of which has been ground and used to replace silica clay cement; and it is intended to have forty or fifty thousand bricks made for experimental purposes. Harbison and Walker have already made a barrel of bricks from this clay, and it is found that they are equal to the best imported silica bricks that are used in the open hearth practice.

Coal mining.

In Cumberland county, coal mining was vigorously prosecuted in 1904, and preparations are being made for still more extensive operations at most of the mines. The coal production of the Springhill collieries was 505,804 tons, the largest in the history of the company.

Londonderry iron mine.

The iron ores of Londonderry are again being mined and smelted. Mr. W. F. C. Parsons, M. E. who is at present in charge of the mines, and from whom most of this information was obtained, is confident that with a reasonable amount of new machinery, such as small compressors, air-drills &c, these mines, which, since 1849 have yielded about two million tons of ore, besides carbonates, could easily supply two furnaces instead of one. Two hundred men are employed in and about the mines. At the Old mountain, half a mile west of the works, on the right bank of Great Village river, and at the mines on Weatherby, Cook and Martin brooks and at the Cumberland road, extensive bodies of rich ore are being developed.

At Old mountain, two levels have been driven in brown ore and ankerite for a distance of half a mile, the ore in the bottom of these levels remaining unmined, although from the bottom of one of them a shaft in the ore is down seventy-five feet, the width of ore being twenty

* G. S. C. Rep. for 1873-74, p. 173; for 1875-76, pp. 373, 424 and 425; for 1876-77, pp. 416 and 456; Vol. VIII, 1895, Part A, page 110.

feet. At Weatherby brook, an adit level driven north 600 feet cuts two large veins of ankerite 40 feet and 12 feet thick respectively, and one of limonite. "Where the adit level cuts the limonite, drifts were worked on the ore east and west for about 400 feet in both directions. At a distance of about 200 feet to the west, a shaft is sunk for about 90 feet in ankerite and brown ore. At a point 80 feet down, levels were again driven east and west following the ore. In the west level the vein averages seven feet in thickness."

"The territory between Martin brook and Cumberland road mine, a distance of one mile, is known as West Mines. This territory, to the depth of 150 feet to number 6 level, contains a net-work of old levels cutting the veins in all directions. From these workings the bulk of the ore that supplied the furnace for about thirty years was taken. In several places the vein was over eighty feet in width, the most of which was limonite." By the sinking of the Jamme winze to the depth of 250 feet below number 6 level it has been proved that a vein of limonite, eighteen feet in width, still continues, so that there must exist a large body of ore below the old workings.

From Cumberland brook, an adit has been driven west 400 feet in ankerite and rich brown ore, in a vein eleven feet wide, ninety feet below an old level which followed the ore far into the mountain side.

These several workings are equipped with boilers, pumps, compressors, air-drills, hoisting engines, blacksmith-shop and other necessary buildings connected by telephone with the general office. The mines west of the works have a narrow-gauge railway for transporting ore to the furnace. There are about six miles of three foot gauge railway and ten miles of standard gauge, including the East mines branch and sidings. There are also four locomotives, flat cars, ore cars, etc.

Ore from Torbrook mines.

The Londonderry Iron Company also uses in its furnace hematite from Torbrook mines, taken from the Woodbury or number 2 shaft, 385 feet deep, on the Leckie bed. This shaft follows the ore at an angle of 80°, for about 300 feet, then flattens to about 45° at 370 feet, where the ore, eleven feet thick, is cut off by a small fault. From a level, about 300 feet down, a tunnel was driven northward 250 feet, about thirty feet west of the shaft, in gray flags or slates which break into brick-shaped pieces; while another cross-cut to the southward, fifty feet west of the Woodbury shaft, cut gray slates for 128 feet, then red. Only ore of low grade was found in these tunnels. The old machinery has been renovated; three small boilers and two compressors are at the mine; about fifty men are employed, and seventy tons of hematite are raised daily. The total quantity of ore taken from the Leckie mine to date is said to be about 150,000 tons.

Iron Ores of Torbrook and Nictaux.

Iron mines of Nictaux and Torbrook.

Judge Haliburton* in 1829 wrote that iron ore had long been known to exist in Annapolis county in great abundance and that efforts had been made to manufacture it at Nictaux. In the year 1825 the Annapolis Iron Mining Company was incorporated to manufacture hollow ware and bar iron. The company purchased a valuable and extensive bed of ore situated about three miles and a half from the mouth of the Moose river, another of equal importance at Nictaux, with one or two beds in other places. They selected the eastern bank of the mouth of Moose river as the site of their buildings, erected a large smelting furnace, stock house, coal house, stores, etc., manufactured a quantity of hollow ware of very superior quality, and laid the foundation of forges for making bar iron. The quality of the ore was regarded as fully ascertained, and the only part of the experiment to be decided was whether they could compete with the English ware, or whether the cost of manufacture would not exceed the value of the article when manufactured, a result depending upon the ecomony and skill with which the establishment was managed.

Description by Jackson and Alger.

In a paper on the Mineralogy and Geology of Nova Scotia, presented to the American Journal of Science in 1828 and 1831 by Jackson and Alger,† mention is made of this ore bed seen on Nictaux mountain. The width of the ore at the surface is said to be six feet and a few inches; increasing, apparently, as it deepens, it gives promise of an immense supply of this valuable mineral. It is covered by a stratum of ferruginous soil about two feet thick, on removing which the surface of the ore bed, being in some places quite smooth as if worn down by attrition, is seen curiously intersected by seams, some of which cross it transversely or nearly at right angles, and, when in open fissures, are filled up with a substance not unlike red ochre. They give the ore a tendency to separate into rhomboidal fragments, similar to those into which the slate itself often divides, and greatly facilitate the labour of raising it. The bed had been opened to a depth of eight or ten feet, and some hundred tons of the ore had been removed to the smelting furnace situated on the southern shore of Annapolis basin.

Fossil shells.

The character of the ore at this place differs in some respects from that of the Pictou county ore. From its very uniform slaty structure it is more easily broken up, and it abounds to a much greater extent with the casts of marine shells, the calcareous parts of which are sometimes still preserved.

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*History of Nova Scotia p. 168. †p. 300.

Dikes and masses of granite and porphyry are described as intercepting the strata of slate and the ore bed accompanying it, but it appears again in the vicinity of Clements, a distance of thirty miles, the last place along the range of the South mountain where it is known to appear.

Gesner's notes on the early working.

Dr. Abraham Gesner, in 1836, in his Geology and Mineralogy of Nova Scotia, states that the smelting-furnace had at that time discontinued operations from causes not generally known, although the ore was said to yield about fifty per cent of good cast iron.

He also adds that the bed of iron ore at Nictaux is about six feet and a half wide and being divided into cubical masses and therefore easily broken up, will afford an immense quantity of metal at less expense than it can be procured at many other places. It has but a shallow covering of soil, a large proportion of which is the carbonate of iron. The walls of slate are distinctly separated from the metallic compound, and are not so much intermixed with the iron as those forming the sides of the bed at Clements. The ore, though very similar, is of a superior quality, and offers every inducement for working. At that time, excellent iron, manufactured at a smelting furnace and foundry erected near Clements, several years before was in use in Cornwallis. The ore, like that at Clements abounds in marine organic remains, and the impressions they have made in the ore and slate are extremely beautiful and distinct. It is argued that because the shells at Nictaux are as abundant in the iron ore as in the slate they are of contemporaneous origin.

Fossil shells.

About a mile and a half north-west from the spot where the ore has been exposed, the Nictaux falls come foaming down a narrow and tortuous channel worn out of the strata of slate. Were an iron foundry erected at the falls, it is improbable that it would be unprofitable. Only a mile and a half from the ore, the rapid river would supply a power more than sufficient for any machinery that might be required under the most extensive operations, and Dr. Gesner does not hesitate to declare that the mining and smelting of iron ore at Clements and Nictaux may be as profitably conducted as in any other part of the world.

In the Industrial Resources of Nova Scotia, he deplores, in 1849, the failure of an association formed for the smelting, casting and manufacture of iron near Clements, although both the ore and the iron produced from it proved to be unexceptionable; he adds: 'Another band of iron ore occurs in the Silurian rocks of Nictaux, which, like those of Clements, abound in the fossil shells and corals peculiar to

the group. The ore at this place is six feet four inches in thickness and the outcrop is seen on the surface to the distance of half a mile.

Nictaux falls. The falls of the Nictaux river offer an admirable site for machinery, and the forests through which the stream passes would maintain a furnace for a long period of time. Excellent iron was manufactured at this place in the early settlement of the country. Silurian fossils are found at New Canaan, southward of Kentville; and the ochres that usually accompany the iron were made into pigments at that village a few years since.' Dr. Gesner also foresaw that after the forests had disappeared the coal mines would offer a cheap supply of fuel; and he pointed out that the iron ores of Great Britain did not yield on an average more than 35 per cent of cast metal and that many of them are taken from the clay ironstone beds of the coal fields, scarcely exceeding a foot in thickness, and from great depths; that, moreover, the iron mines of Annapolis are on lands embraced by the old grants in which the coal, iron and other minerals were not reserved to the crown,

Quality of the ore. The excellent quality of the ore thus highly spoken of so many years ago was corroborated by subsequent observers and it was shipped for many years to mix with the iron ore of Londonderry, to which, however, it is said by Dr. How* to be inferior.

This interesting mining district is situated among blooming orchards, cultivated fields and green meadows, is intersected by roads and is close to two railways and in the vicinity of two large water powers.

When the Nictaux works were in operation, limestone was imported from New Brunswick to a port on the Bay of Fundy and thence conveyed by land carriage some eleven miles to the furnace. Several thousand tons of iron ore were mined, chiefly from the bed of shell ore, but knowledge of the ores of the district was not confined to one bed; in

Report by Dr. Jackson. 1855, Dr. Jackson, State assayer for Massachusetts, wrote:—'One cannot fail to be surprised at the enormous quantities of ore which are already exposed by the numerous openings that have been made. There are several distinct and parallel beds of iron ores which we examined, from four to ten feet in width, extending certainly no less than five miles continuously. * * * The supply of iron ores at Nictaux is inexhaustible.' Dr. Hayes described, a short time before, the ores of Nictaux, and spoke of the magnetite on the west side of the river, of the less compact bright red ore of Little river, and the bog ore of the valley. While the two former are very dissimilar in appearance, there can be little doubt but that they and all the intermediate varieties, from the compact, strongly magnetic to the friable

*Trans. N. S. Inst. Sc., Vol. I, Part I, page 86.

fossiliferous red ore, are of the same geological age; the gradation from one variety to another being gradual and dependant on the distance from the seat of metamorphic action.

Mr. Mushet writing to Mr. C. Archibald, said :—"The shell ore is quite a novelty, and the magnetic character of some of the pieces contrasts strongly with the inert state of others to all appearance of similar composition. I have examined it and find that it is curiously comprised of magnetic and non-magnetic laminæ. The assay of the former gives 67¾ per cent, and the latter 54 per cent*.

Dawson's description of Nictaux ore.

Sir William Dawson† describes the Nictaux ore as a bed of highly fossiliferous peroxide of iron, from three to four and one half feet in thickness, the outcrop of which appears at several places in Nictaux and at Moose river with dark-coloured flags and slates dipping S. 30° E. at a very high angle beneath Triassic, red, coarse sandstone and extending from Canaan and Kentville, in Kings county, to Bear river in Digby county, a distance of seventy miles, but separated into two parts by granite. At Nictaux the ore is a peroxide of iron, containing 55·3 per cent of iron, laminated in structure, and full ot fossil shells. At Moose river it is in the state of magnetic iron, buf retains its character in other respects. This ore is thus of great value. Its distance from the coal fields, and the consequent necessity of smelting with charcoal, have been obstacles in the way of its commercial application.

"The fossils of the ironstone and the accompanying beds, as far as they can be identified, are *Spirifer arenosus*, *Strophodonta magnifica*, *Atrypa unguiformis*, *Strophomena depressa* and species of *Avicula*, *Bellerophon*, *Favosites* and *Zaphrentis*, etc. These Professor Hall compares with the fauna of the Oriskany sandstone, and they seem to give indubitable testimony that the Nictaux iron ore is of Lower Devonian age.

This conclusion is, however, disputed by Dr. Honeyman in his notes on the geology of the rocks of this district.‡

How's description of Moose river and Nictaux ores.

Professor How‖ describes the ores of Moose river and Nictaux river as of the same nature as those in the slates of the East river of Pictou, consisting of conformable beds in the Lower Devonian slates, the iron ore at Clementsport being nine feet wide, in a magnetic

* H. S. Poole, Report of the Department of Mines for Nova Scotia, 1877, page 44.
† Canadian Naturalist, 1860, etc. ; Acadian Geology, pages 499 and 526.
‡ Trans. N. S. Inst., Sc., Vol. IV., 1875-1878, pp, 337-362.
‖ Mineralogy of Nova Scotia, 1868.

condition, holding fossil shells, ding, in 1862, five tons of iron a day; that of Nictaux river has been in part rendered magnetic, the magnetism depending, he believes, on the state of aggregation and not on the chemical composition of the ore.

Previous operations at at Nictaux mines.

The Nictaux mines had been worked for many years and extensive works had, at great expense, been erected for smelting the ore. In 1855 a company of English capitalists continued operations on the ores of the shell bed, and in 1858 exported 744 tons of iron valued at $2,375, and in 1859, 1,125 tons valued at $14,790.‡ One shaft was opened close by the furnace, another about two miles to the eastward. The main supply of limestone came from St. John to Port George, ten miles away on the Bay shore. The pig iron had to be hauled to the same place for shipment. Charcoal was used instead of coal. These methods of operation proved so costly that these works, also, had to be closed.

About 1870 Messrs. Stearns and Page, the promoters of the railway from Middleton to Bridgewater, turned their attention to the magnetic ores of Cleveland on the west side of Nictaux river, from which a bed about eight feet thick was followed at intervals as far as Lawrencetown, six miles west of the river, where the strata are finally cut off by the granite.*

They took out leases of an extensive territory, intending to re-open the mines on the completion of their railway, which was projected to run along the deep valley of the Nictaux river, and by facilitating transportation would remove one of the chief obstacles to the success of the earlier blast furnaces. The old furnaces were in ruins, having been partly torn down by the people in the neighbourhood to obtain the bricks.† From the Cleveland areas a few experimental cargoes were shipped and the ore was found to be of good quality. But their first plans miscarried, and it was not until many years later that the Nictaux and Atlantic was formally opened as the Nova Scotia Central Railway, which is now called the Halifax and South-western.

These early operations are referred to by Dr. H. S. Poole in his reports as Inspector of Mines and in an article by him on "Iron Making in Nova Scotia early in the Century".‖

Harrington's description of the ores.

The ores are described by Dr. B. J. Harrington § as fossiliferous hematites which have, in many cases, been more or less altered to

‡ Markland by R. R. McLeod, 1903, p. 198.

* Rep. of Dep. of Mines for N. S., 1877, p. 43; Middleton Outlook, June 14, 1895, and December 2, 1904.

† J. H. Bartlett, on the Manufacture of Iron in Nova Scotia, Trans. Amer. Inst. M. E., Vol. XIV, p. 537.

‖ Trans. Min. Soc. of N. S., Vol. II, p. 148.

§ Rep. Geol. Surv. for 1873-74, pp. 206, 210, 218.

magnetite, but which still hold numerous fossils of lower Devonian age. A massive, fine-grained, tough magnetite, breaking with sub-conchoidal fracture and resembling some of the Laurentian ores, sent to the laboratory of the Geological Survey for examination, held no fossils whatever, but, like the fossiliferous ores of the district, contained a large quantity of phosphorus.

Red hematite at Torbrook.

In the autum of 1890, R. G. Leckie, Manager of the Londonderry Iron Company, revived the interest in mining in this district by securing a bed of excellent red hematite at Torbrook, about three and a half miles east of the Cleveland mines, and in the spring of 1891 a steam hoisting plant was erected, shafts opened and a railway laid to Wilmot, three miles distant, to join the Windsor and Annapolis, now the Dominion Atlantic railway. The ore was transported to Londonderry to mix with other ores, and the owner of the land having the right to the iron ore by the terms of the grant made to the original settlers by the British government, Messrs. Barss and Burns, S. Barteaux and John Banks drew large amounts of royalty.

No. 1 bed.

As enumerated by Mr. R. G. E. Leckie, for some time manager of the mines, in his paper on the iron deposits at Torbrook,‡ the ore beds are four in number. No. 1 is that which has been worked at Torbrook mines and is locally known as the Leckie bed ; its general strike is N. 40° E. and its dip, S. 40° E. < 70°—80°. It has an average thickness of six feet and is perfectly clean, there being no slate or stone between the north and south walls. These walls consist of two feet and eighteen inches respectively of a variegated talcose slate, white, bluish and pink in colour, the white and bluish slate predominating, interstratified among dark blue slates spotted with red iron stains.

It is noticeable that this bed of ore is entirely free from shells, while the overlying No. 2 bed, between sixty and a hundred feet south, and several beds of the surrounding slate are highly fossiliferous.

No. 2 bed.

No. 2 or the shell-ore bed, as it is called, is that which was worked by open cut for many years to supply the old furnace at Nictaux falls It is perhaps identical with the shell bed worked at Moose river, although the connection has not been traced, on account of the disturbed condition of the intervening ground. The ore is a red hematite, metamorphosed at the western end into magnetite by its proximity to the igneous rocks.

‡ Trans. Min. Soc. of N. S., Vol. I, Part 3, p. 54.

No. 3 bed.

The outcrop of No. 3 bed appears halfway up the side of South mountain about a mile south of No. 2. It is the same in width and structure as No. 1, the only difference being that it is somewhat magnetic in character and has a darker or reddish brown streak. The dip is almost vertical or slightly inclined to the north-west, so that it has reasonably been assumed to be a repetition of No. 1 on the southern outcrop of a syncline, although as yet no bed corresponding to the shell-ore has been found north of it.

No. 4 bed.

No. 4 bed of Mr. Leckie's report has been opened on Messenger's property, almost on the Kings county line, and following the strike it would be farther up the mountain than No. 3, although the walls are composed of talcose slate like those of No. 1. It was opened and found to be of the following dimensions: Ore 2 feet; Slate 3 feet; Ore 1 foot.

Torbrook mines.

Active operations began, as already stated, in the spring of 1891 when ore was raised from two shafts (called No. 2 and No. 4), one of them worked bv back-stoping the ore, while the other was worked underhand. In the autumn two more shafts were opened (No. 3 and No. 5). No. 3 was worked underhand and No. 5 shaft by back-stoping. Four levels were driven in the ore cut by these shafts. The lower levels were still in good ore when the work was discontinued; in the two upper levels going east the ore is said to have been cut off by a small fault. A four-drum friction hoisting plant was put in during the winter of 1892 to hoist from Nos. 3, 4 and 5 shafts. No. 2 shaft had a separate engine and boiler having a capacity to hoist with steel skips of over a ton.

The mine was also equipped with an air-drill plant, by which the output was increased from twenty tons a day in the spring of '91 to seventy tons in the spring of '92, and in the fall to 130 tons. The equipment included locomotive boilers, two air compressors, running six machine drills, and five steam pumps. There were four shaft-houses, three engine-houses, two drying-houses, a blacksmith and carpenter shop, store-houses, dynamite magazine, office building and several dwelling houses. A Cornish plunger-pump was placed in No. 2 shaft. No. 4 and No. 5 shafts were kept dry by small steam Blake pumps. About one hundred men were employed. No. 4 or the Barteaux shaft is 335 feet east of No. 2 and 240 feet deep; No. 5 or the Leary shaft, 275 feet east of No. 4, is 112 feet deep and the ground is stoped out for 160 feet to the east b tween the bottom level and the surface

In a report accompanying that of Mr. Leckie, Mr. William Smaill gives analyses of the ore of the district, of which he enumerates two varieties: a highly fossiliferous hematite, known as shell-ore, rich in iron, but too high in phosphorus to be used in the manufacture of foundry iron; and the compact red hematite of Torbrook, somewhat siliceous, with a perfectly tabular cleavage.

In 1895 the main shaft was 350 feet deep,* and levels had been extended in the ore to a distance of 1,500 feet. The angle of inclination, about 80° at the surface, had flattened to 45° and the thickness of the bed of ore had increased from six to twelve feet. A large number of dwellings were erected in the neighbourhood, including a store, barber shop and photographic saloon, and a little village had grown up around the mines. Although only thirty-two miles from shipping at Annapolis by the Dominion Atlantic railway, another route of shipment was talked of, namely, by rail to Middleton, thence to Margaretville, eight miles distant on the Bay of Fundy—a harbour open all the year round—through a natural vault in the North mountain. But after 1896 the mines were closed for some years owing to the suspension of work at Londonderry, and because the Nova Scotia Steel Company drew its supply from Newfoundland; they were not opened again until 1903. When closed down the mine was in good working order with a large amount of valuable ore in sight.

Production. The production of iron ore from the Torbrook mines during these years† is estimated as follows: to 1891, 10,000 tons; 1892, 18,000 tons; 1893, 30,000 tons; 1894, 21,590 tons; 1895, 35,073 tons; 1896, 19,944 tons.

After operating for five years, and supplying Londonderry and Ferrona with 135,000 tons, the Torbrook mines, as already stated, were idle from 1896 to April, 1903, when they were reopened for the Londonderry Mining Company, under the superintendence of W. F. C. Parsons and the management of Mr. H. McI. Weir. The old plant was used after being renovated. The mine was pumped out and ore was raised from the No. 2 or Woodbury shaft. Part of the work was done by contract. Fifty men were employed; in 1903 nearly 5,000 tons of ore were mined, and the present output is about seventy tons a day.

Mr. Parsons states that the ore bed in the present workings varies considerably in size, and in places runs up to twelve feet in thickness, being apparently lenticular in form, the lenses pitching westerly at a low angle.

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* Rep. of Dept. of Mines for N.S., p. 53.
† Bell's Mining Manuals for 1893 to 1897.

Dr. Gilpin's report.

Dr. Edwin Gilpin, inspector of mines,* refers to the first attempts to manufacture iron early in the nineteenth century, when a few tons of bar iron were made in a Catalan forge at Nictaux; to the production, a few years later, of an excellent charcoal iron which was largely cast into kettles and stoves, and to other subsequent operations already described.

He maintains that in the Nictaux district the conditions resemble those of Germany, and that ores are presented suitable for the basic process, in addition to some that can be graded as Bessemer. Their contents run from 52 per cent to 62 per cent of iron, are low in sulphur and vary in phosphorus from .03 to 1·30 per cent. Two or more ore beds, varying in thickness from two to fifteen feet, have been traced continuously from the granite intrusions west of Nictaux river to the Kings county line, a distance of about five and a half miles, and perhaps extend still farther to the eastward, on both sides of a basin a mile wide and possibly repeated to the northward. They have been proved also to maintain their quality and size to a depth of 400 feet. Much is still needed, he adds, in the way of exploration to test their continuity and their economic value, by deeper shafts or tunnels and by analyses of the ore obtained from them. As to the quantity of ore there can be no question; the amount available and easily mined above the water levels of the Torbrook and Nictaux rivers must be enormous. The question of the economic values of the ores must be a subject of extended investigation. Practical working has shown that the red hematites can furnish a foundry and forge pig. The magnetites are, with some exceptions, too phosphoric for this purpose. The ores are, as a rule, siliceous and in some cases manganiferous, but low in sulphur; they run high enough in iron and phosphorus, and low enough in sulphur, to answer for the basic process, and their large silica content would prove the principal obstacle to their use for this process. To meet these drawbacks it must be remembered, however, that the mining of these ores and their transportation would be cheaper than from almost any other iron ore district in Nova Scotia, and the preliminary outlay for machinery, drills, wire tramways, etc., would be reduced to a minimum by the facilities available for utilizing water power for generating electrical power.

Bailey's report.

Recent investigations of the geological structure of the Nictaux and Torbrook basin are given by Professor Bailey in his reports to the

* N. of Eng. Inst. M. E., 1876; Mines of N. S., 1880; Can. Soc. C. E., Vol. V., 1891; Trans. N. S. Inst. Sc. Vol. IX., 1894-98, p. 10, "On Steel Making in Nova Scotia;" Minerals of Nova Scotia, 1901.

Geological Survey* in which the fossils are referred, on the authority of Dr. Ami, some to the Silurian, some to a transitional series, and others to the Lower Oriskany.

On page 142 of Prof. Bailey's second report is given a list of the farms containing deposits of iron ore. These are shown on the map accompanying the present report.

Vigorous explorations, in charge of Mr. Francis Park, Major James L. Phinney and others, were carried on during the summer of 1900 by Messrs. S. M. Brookfield of Halifax, George E. Corbitt of Annapolis and others, records of which have been obtained for the Geological Survey through the kindness of these gentlemen.

Borings.

A bed, varying in thickness from six to ten feet, was traced westward from the Black river at the contact of the Triassic near the county line, and passing a short distance south of the Leckie bed is believed to represent the well known shell bed, the ore running from 33 to 55 p. c. of metallic iron. One of the Government calyx drills was used‡ to bore through the bed at a depth of 300 feet beside the Torbrook road near the Leckie mine. At this depth the ore bed is said to be about nine feet thick. A subsequent boring at Fletcher Wheelock's farm cut three beds of iron ore; and one, No. 5, on the S. McConnell farm, cut two beds on the steep north dip of the syncline, which seem to prove a thickening of both in depth.

Jennison's report.

Sufficient work was done, according to Mr. W. F. Jennison† by a series of bore-holes, test-pits and trenches to show that the ore beds are continuous as above stated, with the exception of small interruptions by faults, one of which on the east side of the Leckie workings, and another west of them, have been proved; and by dikes of diorite and granite which have partly metamorphosed the red hematite into magnetite.

Cost of mining.

The close proximity of the ores, both in the valley and on the South mountain, renders concentration of the mines and machinery possible, and reduces the cost to a minimum. With a production of 150 tons a day the cost of mining and shipping ore to Sydney is estimated by Mr. Jennison as follows:

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* Vol. VI, 1892-93, Part Q. pp. 13-15; Vol. VII, Part A., p. 91; Vol. IX, Part M., 1898, pp. 91-111 and 140-143.

‡ D. Weatherbe, "Core Drilling in N. S.;" Trans. N. S., Inst. Sc. Vol. X. 1901, page 350.

† Nova Scotian, Halifax, 1903, p. 38; and a private report on Torbrook Iron District.

Mining and putting on cars	per ton	·75
Haulage by rail to Annapolis, 32½ miles	"	·25
Loading ship at Annapolis	"	·10
Freight to Sydney	"	1.00
		$2.10

Timber for all mining purposes is easily procurable. Mr. Jennison suggests the derivation of power to work the mines from the Nictaux river, which has a length of fourteen miles, is fed by several large lakes, has a fall of seventy feet in a distance of 3,750 feet and a flow during the dry season of 7,680 cubic feet per minute, which would give 500 horse power, during the dry time. The cost of installing electrical plant of this power and connecting it with the mines three and a half miles distant, he estimates at $25,000.

Quantity of ore.

Various estimates, all more or less vague, have been made of the approximate quantity of iron ore in this district. Dr. Gilpin estimates that every thousand feet longitudinal and 500 feet vertical of the northern beds worked out will produce 1,800,000 tons of ore—practically three years supply at 2,000 tons per day. His estimate to a depth of 800 feet for the district so far developed is not less than 300,000,000 tons.

Consequently, the small extent to which, so far, the ores of Nictaux and Torbrook, those of the East river of Pictou and other localities in Nova Scotia have been used, can only be explained, as suggested by Dr. Poole, by supposing that they are harder to smelt ; that they are not so high in metallic iron as foreign ores or that they cost more to mine and deliver at the furnaces.

Explorations.

The following notes extracted from reports of the explorations made by Messrs. Park and Phinney will be readily understood by reference to the map which accompanies this report.

On the south side of the basin the dip is N. 48° W. $<$ 87° at the Messenger pit, but changes at the county line, being perhaps affected by the proximity of granite.

Section of ore bed.

On James L. Brown's farm, three beds have been opened, showing considerable magnetic attraction ; in the centre bed the ore is similar to that of the Messenger pit. On I. J. Whitman's and James Jefferson's farms, there is found a broken ore of excellent quality, not so red as that of the Messenger pit. At Obadiah Brown's, the ore is also of good quality and contains no slate bands. The section of the

ore bed on the Baker, McConnell and other farms is given in the following tabular form :

Pits.	Ore.	Slate.	Ore.	Slate.	Ore.	Slate.	Ore.	Slate.	Ore.	Slate.	Ore.	Total.
	ft.in	ft.in	ft.in	ft.in	ft.in	ft.in	ft.in	ft.in	ft.in	ft.in	ft.in	ft.in
Baker, No. 1.....	0·10	2·10	4·0	2·6	0·7	1·6	2·3	3·3	0·6	....	....	18·3
" 2..	1·0	2·0	5·0	3·3	1·7	1·4	1·1	0·3	0·5	2·6	0·8	19·1
McConnell, No. 1. .	0·8	2·6	5·0	2·6	1·2	1·5	1·10	3·0	0·4	. ..	...	18·5
" " 3...	1·2	2·10	4·10	2·9	1·0	1·6	1·7	3·0	0·2	....	....	18·10
" " 4..	1·8	2·8	4·0	3·6	1·0	1·3	1 6	3·9	0·4	...	....	19·8
Messenger pit .. .	.....	.....	2·0	3·0	1·0	....	.....	....	....	....	....	.....
Jas. L. Brown	.....	... .	2·9	2·8	3·1	...	... .	....	...	....	....	.....

In McConnell No. 1 the ore of the large central layer is brown, while that on the sides is black. In this ore there are no shells, while shells are numerous in that of the Baker farm. The slates are hard and dark. On the H. P. Wheelock and M. and E. Armstrong lots, the ore is similar to that of the Baker No. 1 and the pits are all in line and on the same bed as far as Torbrook.

The most westerly of two pits on D. B. Armstrong's farm at a depth of fifty feet was still in surface soil; the other found ore similar to that of McConnell No. 4 pit, pushed about and broken by proximity to the granite.

The foregoing openings are on the south side of the syncline or basin ; those now to be described are on the north side. No ore has been found in the bed of the Nictaux river, where it is probably covered by drift, for the line of the ore from Martin's to Ward's, on the east side would strike, if produced, the beds of the Cleveland mines on the west side of the river.

On William Ward's farm, the old workings are being extended to obtain iron ore for the furnaces at Londonderry. W War perty.

An old shaft, sunk fifty years ago or more by the smelting company that operated at Nictaux falls, was cleaned out, the timbers being found in a good state of preservation. Three and a half feet of ore is already in sight. The company intend to haul the ore to Nictaux station for shipment.

E. Martin property.

The shell bed, averaging three feet in thickness, has been traced from Ward's for 2,800 feet without a break to Edward Martin's, where there seems to be an offset to the south about three hundred feet, beyond which it has been traced across the Hoffman and Holland farms and halfway over Stanley Brown's, with the exception of a few feet of offset on H. P. Wheelock's farm. The average thickness of the iron ore is six feet, with 52 per cent of iron. The old trenches on the shell-ore bed are about eight feet in depth and they have a total length of nearly a mile. At the break on the shell-ore at Martin's and also at J. Allen's, two other beds of magnetic ore are opened to the north of it. The first, at sixty feet from the shell-ore, is two feet eight inches wide; the other, sixty feet farther or 120 feet north of the shell-ore bed, is three feet six inches wide and runs to DeLacy Foster's and Albert Wheelock's (Benjamin Wheelock No. 1 of Honeyman's report) where the dip is 87° to the south-eastward. A bed of hematite, called the Park bed, probably the equivalent of the Leckie bed, was also opened on Martin's farm and runs parallel with the shell-ore as far as Eliakim Wheelock's east line; its average thickness is four feet five inches and its composition is about 50 per cent of iron.

Page and Stearns property.

After leaving Foster's no ore bed is found until we come to the Page and Stearns lot, where a bed of red hematite two feet nine inches in thickness was opened. On the banks of the Black river, to the eastward, there appear to be three beds of iron ore, the Spinney bed, ten feet thick, and two beds north of it, three feet four inches to five feet two inches and two to three feet wide respectively. The ore of the Spinney bed is not as good as that of some of the other beds; it yields only 33 per cent of iron.

The ore of the Leckie mine was lost both going east and west. Trenches have been dug in search of it both north and south, but it has not been found, unless represented by the inferior ore of the five foot bed north of the Spinney bed. A cross-trench was dug to the rock from the road near J. Goucher's line for about 3,000 feet north to the river; a great deal of money was spent in this neighbourhood in exploration.

Fletcher Wheelock property.

On the Fletcher Wheelock farm a shaft was sunk fifty feet on a bed about nine feet thick without partings between the walls and yielding about 48 per cent of metallic iron. On this farm, also, No. 4 borehole was drilled to a depth of 635 feet from a point about forty feet south of the hanging wall of the shell bed.

North of the ore bed at Albert Wheelock's there is a band of diorite with white quartz along its contact with the slates. From the edge of this diorite, on the M. Hoffman lot, a cross-cut was extended southerly; it cut three beds, very white and full of shells, but containing some excellent iron ore. Ore was taken from both the shell bed and the Leckie bed on the George Holland farm.

Stanley Brown property

Where opened half way across the Stanley Brown lot, east of the private road, the shell bed is found to be a mass of shells with very little iron, whereas the Leckie bed, uncovered in two places, shows three feet of good ore.

On the Annie Parker (Deacon Feltch) lot the ore was not found, being covered by a boarsback of drifted sand and gravel, and on W. R. Neily's it was found only as drift, and is perhaps interrupted by a belt of greenish gray diorite.

From the Barss and Burns and from the Samuel Barteaux (Samuel Wheelock of Honeyman) areas, most of the ore shipped from the Torbrook mines has been obtained. The Leckie bed was only eighteen inches thick at the surface, but increased greatly in depth.

E. M. Barteaux property.

On the E. M. Barteaux farm, from the Parker line, a costeaning trench was cut close along the east side of the Torbrook road for 2000 feet, under the direction of Captain Park. In red slates on the line of the other ores, it cut three beds of low-grade iron, one of which was six feet thick. Borehole No. 2 was close to and in line with this cross-cut or tunnel, and to a depth of 111 feet cut red shales, dipping at an angle of 85° to 87°. Borehole No. 3 was drilled twelve feet north of the preceding, in red shales dipping at an angle of 83°, to a depth of 228 feet, and bored to a total depth of 330 feet. All the rocks here seem to be red and to differ from those of the iron mines, yet a bed resembling the shell-ore is opened at the river to the eastward, and another, supposed to be the Leckie bed, is present in the bed of the river.

On the Hatt and Eaton lots, pits were opened on what was supposed to be the shell bed, eleven feet wide beneath fifteen feet of surface. The ore is soft and impure, similar to that in the river to the eastward. At Peleg Spinney's, the eastern pit shows eighteen feet of clean ore and seven feet of mixed red slate and ore, twenty-five feet in all, the south side being the better. It was opened also across the river, and seems to be in lenticular masses or beds of compact and pisolitic hematite. On the David Banks lot, on the

bank of the river, in the first bed north of the Spinney bed, there is five feet of soft, low-grade ore, and on Mrs. Spicer's, three feet of hard ore.

Other properties.

On T. B. Messenger's lot, a small brook shows gray and red slates well exposed for a breadth of 1516 feet from a point a short distance above their contact with the Triassic sandstone of the valley, the red slates being above and below the gray, the latter occupying a considerable breadth in the centre. As already stated, these slates appear to lie in a syncline; but it has also been suggested that the structure may be anticlinal, and further examination is required to determine the thickness of the ore-bearing belt of this district and the relation of the red strata of the Torbrook road to the gray beds of Torbrook mine. It is supposed by Major Phinney and others that this belt extends to the northward of the outcrops above described. In the brook which runs into Nictaux river, three-quarters of a mile below the falls, the Foster pit was sunk thirty feet on iron ore containing 34.45 per cent of iron and 10.55 per cent of manganese. The ore is hard and does not break like the Torbrook ores. At the same place a trench was dug for 1,000 feet across a mass of broken red slates.

Loose ore is reported to have been found, also, on the farms of E. Pierce (A. B. Parker), A. S. Banks and George Holland; and samples of limonite in the drift on the Frank Woodbury property.

Analyses.

The following analyses, collected from different sources stated in the table, will serve to show the character of the Nictaux and Torbrook iron ores:

Analyses of Iron Ores of Nictaux and Torbrook, Annapolis County, N.S.

Sample No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Peroxide of iron	69·17	71·85	26·39	.....	.....	75·80	48·34	.....	.....	.....	74·63	86·74	84·29	.....	.....	.....	.....
Protoxide of iron	.....	.....	.....	.....	.....	.....	21·76	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Protoxide of manganese	.....	0·28	12·74	.....	.....	0·65	0·40	.....	0·86	.....	.....	.....	.....	.....	3·02	Heavy trace	.....
Alumina	.....	3·59	.....	.....	.....	4·19	1·62	.....	5·53	.....	.....	.....	.....	.....	5·00	.....	.....
Lime	..	2·30	.....	.....	.....	6·30	4·01	.....	2·70	.....	.....	.....	.....	.....	.....	.....	.....
Magnesia	....	1·00	.....	.....	.....	.....	0·60	.....	0·41	.....	.....	.....	.....	.....	.....	.....	.....
Phosphoric acid	1·82	.....	.....	.....	.....	.....	3·08	.....	.....	.....	3·80	0·399	.....	0·427	.....	0·414	.....
Sulphuric acid	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0·57	0·196	.....
Titanic acid	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Insoluble matter	18·94	18·13	33·50	11·64	.....	8·26	18·95	18·56	13·30	17·21	11·00	10·28	12·87	.....	26·50	10·12	.....
Metallic iron	50·09	50·27	.....	59·11	53·14	53·06	50·77	52·22	55·49	57·99	52·24	60·72	59·00	61·38	47·50	55·74	56·45
Phosphorus	0·05	.....	.....	0·17	0·172	2·65	.....	.....	0·23	0·18	1·66	0·17	.....	0·18	.....	0·18	.....
Sulphur	0·79	.....	.....	0·09	.....	0·20	0·08	.....	0·08	0·04	.....	.....	.....	.....	0·23	0·08	.....
Manganese	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Nictaux—1, Geological Survey Report for 1873-74, page 210; 2, Geological Survey Report, Vol. V., Part P., page 179; 3 do, page 180; 4 and 5, Gilpin's N.S. Mines and Mineral Lands, 1880, page 58; 6, "Shell ore," William Smaill in Trans. Min. Soc. of N. S., Vol. I., Part 3, page 62; 7, do, page 59, a magnetite; 8, Average of four magnetites from the Heatly, Baker and McConnell (2 samples) farms at Nictaux and Cleveland, Geological Survey Report, Vol. XIII., Part R., page 29, 1900; 9, Average of three samples of magnetite from Cleveland; 10, Average of two samples of hematite from Cleveland; 9 and 10, from Department of Mines for N. S., page 61, 1875.

Torbrook.—11 to 17, Geological Survey Report, Vol. V., Part P., pages 179 and 180.

ANALYSES OF Iron Ores of Nictaux and Torbrook.—*Continued.*

Sample No.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Peroxide of iron						49·52		79·42									
Protoxide of iron						27·09											
Protoxide of manganese						0·80		0·38									
Alumina				3·14		1·90		5·08									
Lime				2·16	4·50	7·00		1·90									
Magnesia						1·80		0·35									
Phosphoric acid					0·30												
Sulphuric acid				0·11													
Titanic acid											0·144						
Insoluble matter			17·21	5·93	9·50	13·48	10·22	12·00	11·56	10·39	10·87	14·16	10·35	7·97	9·41		
Metallic iron	56·00	58·05	57·93	59·86	60·00		59·76	55·60	54·71	42·30	54·84	53·10	55·40	54·28	52·40	50·76	54·87
Phosphorus		0·193	0·16		0·13	Trace		0.43	0·669	0 396	1·452	0·704	1·037	0·53	1·861		
Sulphur			0·036			Trace		0·11	0·007	0·015	0·015	0·025	0·114	0·028	0·030		
Manganese										0·52	0·41	0·24	0·26	0·28	0·23		

TORBROOK—18, Geological Survey Report, Vol. V., Part P., pages 179 and 180; 19 and 20, Gilpin's Mines and Mineral Lands, 1800, page 58; 21 and 22, Geological Survey Report, Vol. X., Part S., page 98; 23 and 24, R. G. E. Leckie in Trans. Min. Soc. of Nova Scotia, Vol. I., Part 3, page 53; 25, do., page 61; 26 to 32, Ores from the Armstrong and other farms on the South mountain, Report by Dr. E. Gilpin, 1901; 33, average of 10 samples, ranging from 46·60 to 55 per cent of metallic iron, from the Spinney, Martin, H. P. Wheelock, F. Wheelock, Holland and Allen farms; see map also Geological Survey Report, Vol. IX., Part M., page 142; 34, McConnell farm on the southern side; 33 and 34 are also from Gilpin's Report, 1901.

Gold Fields of Nova Scotia.

By Mr. E. Rodolphe Faribault.

Office work by M. Faribault.

Mr. Faribault was engaged in office work from October 12, 1903, until June 15, 1904. The greater part of this time was spent in plotting the surveys, made by him the previous summer, of gold mining districts in the counties of Guysborough, Halifax, Hants, Lunenburg and Queens and in revising the plotting of surveys, made by his assistants, of the granite region lying to the north of St. Margarets bay, as detailed in the Summary Report for 1903, pages 174 to 186.

Much of his time was also taken up, as usual, in correspondence, especially in answering letters from persons seeking information and advice on the gold fields of Nova Scotia, which are attracting more and more attention from scientists and capitalists, at home and abroad.

The plan and section of the gold district of Gold River, surveyed in 1901, and those of Isaac Harbour and Cochran Hill, surveyed in 1902, have been published.

Plans and maps.

The plan of Wine Harbour gold district is now being engraved, while that of Harrigan Cove and Miller Lake were completed for publication and only require to be traced for engraving.

Mr. Owen O'Sullivan, of this department, was engaged some four months during the winter in compiling from the plotting sheets onto the one-mile to an inch map the topography and geology of the region extending from Halifax north to Rawdon and west to Newport, Mount Uniacke, Pockwock lake and the head of St. Margarets bay. The compilation of the surveys made for several years past in the counties of Halifax, Hants, Lunenburg and Queens is still in arrears, but it is now progressing more rapidly and will soon be completed for publication

Report on gold fields of eastern N.S.

A special report on the gold fields of Eastern Nova Scotia is well advanced and will be ready for publication next year. It will include the plans of twenty-five of the most important gold districts situated in the counties of Guysborough, Halifax and Hants; several transverse sections of the saddle-vein formation of different gold mines; a general map of the gold-bearing rocks of the province, showing the location of the gold mining districts from Canso to Yarmouth,

and the granite areas; a geological and structural map of the gold-bearing rocks of the eastern part of the province, from Isaac Harbour to Mount Uniacke, and a selection of photographs illustrating the mines in operation and the structure of the gold-bearing quartz veins.

On the field-work accomplished in the Nova Scotian gold fields during the summer of 1904, Mr. Faribault reports as follows:

In accordance with your instructions, I left Ottawa on June 15, 1904, for Bridgewater, Nova Scotia, to resume last season's surveys in connection with the mapping of the gold-bearing series of the western part of the province and to continue the study of the structural geology of the gold-mining districts which are being operated. I returned from the field to Ottawa on October 6.

Assistance.

I was again ably assisted in the field the whole summer by Mr. James McG. Cruickshank, who has now been my assistant for seventeen seasons, and by Mr. W. H. Prest, from June 15 until September 30. The latter's experience as a practical prospector and miner was especially valuable and useful in some of the districts surveyed.

Acknowledgments.

In the performance of my field-work, I have received much information and assistance from miners and others, and I wish to offer, especially, my acknowledgments to the following persons: Hon. A. Drysdale, Commissioner of Public Works and Mines; Dr. E. Gilpin, Deputy Commissioner of Mines; D'Arcy Weatherbe and Geo. A. Hall, of the Department of Mines; Harry Piers, Curator Provincial Museum; Dr. H. S. Poole, F. H. Mason, Prof. J. Ed. Woodman, Geo. E. Francklyn, Fred. P. Ronnan and Joseph H. Austin of Halifax; G. J. Partington, Isaac's Harbour North; Harold Playter, Goldboro; S. R. Heakes and M. McGrath, Wine Harbour; Geo. W. Stuart, Truro; G. H. Gillespie, Ecum Secum Bridge; W. H. Boak, Harrigan Cove; L. W. Getchell, Caribou Gold Mines; Edwin L. Foster, Clam Harbour; L. F. S. Holland, Cow Bay; Jas. A. Crease, Mount Uniacke Gold Mines; T. N. Baker, Montague Gold Mines; Peter Dunbrack, Dartmouth; E. Percy Brown, H. S. Badger, Dr. D. Stewart, Chas. F. Hall and N. C. Owen of Bridgewater; Thos. W. Moore and J. Lacey, Leipsigate Gold Mines, Bridgewater; R. R. McLeod, Brookfield, Queens County; Sam. Sutherland, Malaga Gold Mines; W. L. Libbey, Stanley Cole, N. C. Crowe and Geo. G. King, Brookfield Mines; Marland L. Pratt, Boston, Mass., and S. L. Kingsley, Bar Harbour, Me.

Surveys.

The greater part of the season's work consisted in making detail surveys of the gold-mining districts of Leipsigate in Lunenburg county,

Malaga and Brookfield in Queens county and Clam Harbour in Halifax county. The surveys of these districts were for the most part plotted in the field, and since my return to the office, the plans of Leipsigate and Clam Harbour have been completed, while those of Malaga and Brookfield are not quite finished. Several districts already surveyed have also been re-examined and a few new gold discoveries have been visited, in the counties of Guysborough, Halifax, Hants, Lunenburg and Queens, at the request of persons asking for information on the progress of developments recently made. Valuable data have thus been collected which will be useful to bring my final report up to date.

Progress was also made, especially by my assistants, in the general mapping of the country surrounding Leipsigate, Malaga and Brookfield mines and these surveys have since been plotted and are ready for compilation on the one-mile to an inch map. These surveys have now been extended as far west as Vogler Cove, Lapland, Buckfield and Cameron Landing thence north to Brookfield, New Germany, Dalhousie road, New Ross road and the Gaspereau lakes, where our work joins Mr. Fletcher's from the north.

Malaga and Brookfield district.

It would not be judicious to report on the gold districts of Malaga and Brookfield before the plans are fully completed, and, besides, it is probable that additional data and surveys will be required to work out satisfactorily the structural geology, and arrive at more precise conclusions regarding the location and extent of the zones of special enrichment and their relation to the structure of the rocks. The following reports on Leipsigate and Clam Harbour are given subject to revision.

Leipsigate Gold District.

Leipsigate district.

The gold mining district of Leipsigate, sometimes called Millipsigate, is situated in Lunenburg county, at a distance of six miles and a half west of Bridgewater, a flourishing town and lumbering centre at the head of navigation on La Have river, and three miles north of the new line of the Halifax and South-western railway completed last summer. Leipsigate takes its name from Leipsigate lake, a beautiful sheet of water 11,800 feet long, east and west, by 4,000 feet wide, situated 225 feet above sea level on the headwaters of Petite Rivière, and surrounded by a comparatively level country.

Gold-bearing veins have been discovered at several places around the lake over an area extending about three miles long and one mile and a half wide. A detailed survey of the area has been made, a plan

compiled on the scale of 500 feet to one inch is completed for publication and a full report is given therewith of the structure of the district.

Rocks.

The rocks of the district mostly comprise beds of gray and greenish-gray, hard, altered quartzose sandstone, locally called 'whin', between which are intercalated bands of bluish and greenish-gray, argillaceous slates, and they form part of the lower and most productive division of the gold-bearing series. Natural rock exposures are sufficiently numerous in most parts of the district to work out the structure with some degree of accuracy, especially with the aid of the surface developments which have been made.

Structure.

A close study of the rock structure from the plan shows that, since their deposition on a sea bottom, the whole thickness of the strata has been subjected to a powerful north and south pressure which has lifted and bent them up into a broad anticlinal fold, the top of which has since been truncated by erosion and planed down to the present level, exposing the uptilted edges of strata which were originally at least 17,000 feet below the surface.

Anticlinal fold.

The fold has the shape of a long elliptical dome, the two axes of which are in the ratio of about one to six. The centre of the dome occurs at the western extremity of the district, 2,000 feet west of Leipsigate lake, about area 57, block 2, and is well exposed on a rocky knoll situated between two hay marshes on Caribou brook.

The anticlinal axis runs N. 64° E. magnetic, through Leipsigate lake, at the eastern extremity of which it follows the outlet, while at the west end it passes 400 feet north of the inlet from Caribou lake. Thus, the rocks on the north side of the lake dip north, at angles increasing gradually from 30° to 55° from the horizontal as we recede from the axis, and on the south side they dip south at angles increasing from 25° to 50°. The angle formed, therefore, by the two legs of the fold is about 75° and the axis plane of the fold is about vertical.

Horizon of rocks.

The slates of the upper division of the gold-bearing rocks are met with about 9,900 feet north and south of the anticline and the horizon of the lower strata brought up by this huge upheaval is about 6,500 feet below the base of the upper slate division, which gives a total erosion of some 17,000 feet of known measures. The horizon corresponds approximately with that of the gold district of Gold River, which is situated fourteen miles farther east and probably on a north branch of the same anticlinal fold.

Pitch of anticline.

On the eastern pitch of the anticlinal dome the strata curve and dip easterly in concentric circles at angles increasing gradually from the dome eastward and reaching 30° at the outlet of the lake; while, on the western pitch, they curve and dip westerly at lower angles and are apparently disturbed by a series of left-hand faults.

Faults.

The only important fault located in the district probably follows a depression between Weagle hill and the Micmac mine and runs in a north-westerly direction towards Bird island, giving a right-hand horizontal displacement of some 400 feet to the Micmac fissure vein. There may also possibly be a corresponding left-hand fault following the swamp immediately east of the Crank shaft and Jackpot mines, running in a north-easterly direction towards South Duck cove and the pond above the dam; but it has not yet been proved.

Interbedded veins.

All the gold-bearing veins so far discovered occur on the eastern pitch of the dome, the centre of which appears to be the western limit of the mining district. The productive veins may be conveniently divided into three classes: 1° the interbedded veins or 'main leads,' following fractures along slate belts intercalated between heavy beds of whin; 2° cross-veins cutting the strata at various angles but of little extent and 3° true-fissure veins cutting the strata but of considerable extent. In this district, interbedded veins do not attain the development in size, length and richness that is generally found in the eastern districts of the province. Several of them have been prospected, and mining operations have been attempted on a few, but generally with limited success. This is due to the fact that the structure of the fold is not propitious to the formation of large main leads. The anticlinal fold is much broader than in anyone of the eastern districts; the angle formed by the dip of the north and south legs of the fold is over 75°; the folding has been gradual with no sharp flexure; hence there has been but little or no parting along the planes of stratification caused by the sliding of one bed upon another and no fracture for the formation of important main leads. In a few cases, however, rich ore-shoots have been found at the intersection of angling veins with main leads, such as the rich paystreak operated at the Bluff mine to a depth of 255 feet and that at the Black Hawk mine, 265 feet deep. But in these cases the main lead and the cross-vein do not appear to carry any gold outside of the shoot. The main leads occur more especially along two well defined zones, beginning at the centre of the dome, on area 57, block 2, and diverging in a north-easterly and south-easterly direction on both sides of the anticlinal arch.

Mineralized zones.

The north-eastern zone is especially well defined. It follows the northern side of the lake and extends to Ernst's Washing lead, a

distance of 10,000 feet from the centre of the dome. The following main leads have been opened along this zone, from west to east:—The Gow lead, worked for several years by the Black Hawk mining company to a depth of 265 feet and for 450 feet in length, on a narrow ore-shoot, pitching west at an angle of 38°, formed at the intersection of a cross-vein with the main lead; the Green lead opened down to 42 feet; Deal's belt of leads, prospected; Birch Brook lead, worked 55 feet deep and 300 feet in length; Garfinkel belt of large leads, developed on the surface and on one of which a shaft was sunk to a depth of 48 feet; the Boulder Hill, McKinnon, Jim Deal, Rusty, Butterfield (32 feet deep), Fox-den and a few other small leads have been a little prospected; the Ernst Washing lead (50 feet deep), from $\frac{1}{8}$ to one inch thick, in a metalliferous slate belt carries a large quantity of gold, and the gold extracted by cradle-washings from the drift lying immediately south of the vein is also derived no doubt from this vein. Much good ground is still completely undeveloped along this zone, more especially between the Black Hawk and the Birch brook leads and beyond as far east as the Boulder hill where a great many large blocks of quartz have been observed, strewn over the surface.

The south-eastern zone of main leads is not so well defined as the foregoing, but it follows in a general way the southern side of the lake and extends probably about the same distance eastward from the centre of the dome. The principal leads opened along this zone are the Pelton (60 feet) Stillwater, Twin, Waterman (48 feet,) Aulenback (40 feet,) Point (90 feet,) Bluff (255 feet,) Quigley (20 feet,) Rose (40 feet,) Johnson (10 feet,) Island (20 feet,) Joe Zink (10 feet,) Greenwood and Lacey (20 feet deep.) The rich pay-streak worked to a depth of 255 feet on the Bluff lead, is a well defined ore-shoot, 8 feet long measured horizontally, formed at the intersection of angling veins or 'angulars' from the north-west with a small main lead and reported to be still as good at that depth as it was above. Rich ore was mined 40 feet deep on the western end of the Rose lead, where it is cut off by a small fault on the eastern edge of a swamp, and gold values were developed at a few other points along its course for a length of 1,300 feet.

Cross veins and angulars.

The district presents a great number of quartz veins following planes of fractures of limited extent cutting the strata at different angles. Many of them attain several feet in thickness, but they are composed for the most part of barren white quartz. Some, however, have been observed on the north side of the lake to include bands holding metalliferous sulphides which are undoubtedly gold-bearing. These have

been located on the plan with explanatory notes, and they should be well prospected along their course for pay-ore, which might be found to occur in shoots at th ir intersection with certain slate belts generally olding seams of quartz.
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A great number of cross veins occur at the eastern end of the district, about the outlet of the lake. They all strike at right angles to the anticline and parallel with the strata, but dip westerly at angles of 50° to 70°, or about a right angle, and in a direction opposite to the dip of the strata. Similar veins have been observed on the pitching arch of folds in the eastern districts. They do not appear to carry any gold, but probably form part of the main system of channels through which the ascending solution came up.

Small angling veins or 'angulars,' branching off from or running into main leads and sometimes causing enrichments in the form of ore-shoots, have already been referred to in the case of the Bluff and Black Hawk mines. They are generally barren of gold, but they appear to be the smaller ramifications of the main channels conveying the solution into main leads where a deviation or a check to the flowage produced a concentration of minerals by precipitation.

Fissure veins.

One fissure vein, however, the Leipsigate, owing to its permanency and size and the uniformity of its ore values, has made the district famous. In many respects it is probably the most typical true-fissure vein in the province, and gives promise of being one of the best producers. It is situated in the most southerly part of the district, some 1200 feet south of the lake, and has been traced for 9000 feet, of which 4350 feet have already been opened in three different sections, which are described here separately.

Western section.

The western section of the Leipsigate fissure is situated to the west of Mud lake, at a distance of 3200 feet south of the anticline. It has been opened for 800 feet along its course by two shafts, the Duffy shaft, ninety-five feet, and the Dr. Cowie shaft, twenty-five feet deep. The course of the vein here is N. 83° 30′ E., magnetic, and it dips north at an angle of 50° towards the anticline, while the strata strike N. 54° E. and dip south at an angle of 49°. The width of the vein varies from a few inches up to two feet, and appears to be made up by small angling veins coming from the north-west and dipping north-east at angles averaging 48°.

The intersection of the fissure with strata as well as with the angulars is thus pitching east, and, according to the general rule in

this as well as other fissure veins in the province, the ore-shoots should also pitch eastward; therefore, developments in depth may meet with good results in that direction.

The fissure vein has not been traced to the westward of the Cowie shaft, but it undoubtedly extends much further in that direction, probably along a low swampy depression running due west to the eastern end of Caribou lake, at the outlet of which a vein, eighteen inches thick, was observed to run N. 41° W., magnetic, and dip south at an angle of 60°.

Towards the east, from the Duffy to the Gilmour shaft, a distance of 800 feet, the fissure vein is also concealed by low swampy ground and Mud lake. A small fault probably occurs between the two shafts, which would account for the change in direction of the vein at both places, but the horizontal displacement is apparently of but little extent.

Middle section.

From the Gilmour shaft eastward, the middle section of the fissure vein has been traced in a straight line for 2,000 feet, bearing N. 64° 45′ E. magnetic, and it dips north at an angle of 70° at the surface, decreasing to 55° at a depth of 180 feet in the Gilmour shaft.

The first mining operations on this part of the vein were undertaken in 1886 by a German party from Minneapolis and Duluth, under the name of the Duluth and Nova Scotia Mining company, but extravagant and unskilful management soon caused the mine to close.

Scotia Company's workings.

In 1901 the Scotia Mining and Development company acquired the old "German" property, so called, and extensive developments have since been made under the management of Messrs. N. C. Crowe and E. Percy Brown, proving the permanency and value of the vein. Two main shafts, 780 feet apart, have been sunk on the dip of the vein. The Gilmour shaft at the west end of the property is 180 feet deep and, at the 100-foot level, drifts have been driven 100 feet west and 320 feet east, developing four distinct and well defined ore-shoots reported to average 24 inches of crushing material and pitching east at an angle of 17°. The old German shaft was sunk 130 feet and drifts were driven 180 feet west and 325 feet east at the 110-foot level. The data obtained from these developments show that the ore also lies in shoots dipping east at a low angle.

Ore-shoots.

It has been observed that the ore-shoots occur at the intersection of the vein with certain strata of soft rock which are apparently more favourable to fracturing, infiltration and deposition of gold. This

important feature already observed in several other fissure veins deserves much attention in mining. These intersections are necessarily continuous for great lengths and a succession of them probably recurs in depth ; it should therefore follow that the ore-shoots are quite extensive in length and that those already developed are likely to be underlaid by a succession of others. This should encourage developments to a much greater depth.

The opening farther east on the Scotia property is fifteen feet deep, on area 402, block 5, 100 feet east of the Bear Trap road ; it showed the vein to be six inches thick. From this opening eastward, for 2,930 feet, to the Micmac main shaft, the country is low, swampy and flooded by several runs of the Menamkeak stream, preventing the tracing of the fissure vein between those two points.

Some rich float found at the north end of Weagle hill came no doubt from this part of the vein, but it is reported that several attempts to cut it have proved unsuccessful. Some local miners, however, expressed the opinion that it was probably cut some years ago on the north side of the brook, about the north end of area 442, block 4.

Good prospects.

This undeveloped portion of the vein, which is for the most part held under the name of David McKay, of Bridgewater, offers undoubtedly a promising field for development.

In producing the course of the vein from either side, we find that there should be a left-hand fault giving a horizontal displacement of possibly 400 feet, measured at right angles to the vein. It is important to determine the exact location and extent of this fault in order to locate the vein. Judging from the surface features and the position of the float to the south of the vein, the fault probably runs N. 30° W. along a depression lying east of Weagle hill and Bird island, and 250 feet west of Weagle's store.

Some rich float from a ten-inch vein was also found on the south end of Weagle hill, half a mile south of the fissure vein, but a shaft sunk several years ago by Germans to a depth of ninety feet in the glacial drift forming the hill, did not reach bedrock, and it is possible that this float may have drifted thus far south from the fissure vein.

Eastern section.

The eastern section of the fissure veins has been developed for a length of 1,600 feet, 1,200 feet of which is situated on the property of the Mimac Mining Company and the rest on that of the Leipsigate Mining Company, called the Jackpot mine. The eastern extension of

the vein, which is as yet undeveloped, is mostly situated on the property of N. C. Owen *et al*, of Bridgewater.

Micmac mine. Extensive and profitable mining has been done on the Micmac property since 1897, first by Messrs. Cashon and Hines, and since April 15, 1900, by the Micmac Mining Company, under the management of Mr. T. W. Moore. This is the only mine worked at present in Leipsigate district. It is well equipped for economical and limited operations and is furnished with a fifteen-stamp mill and a cyanide plant recently erected and successfully operated by Mr. H. S. Badger*

At the Micmac mine the main shaft has reached a depth of 500 feet, and the workings extend 435 feet west and 360 feet east of the shaft; the mill shaft, 670 feet further east, is 180 feet deep, and operations extend ninety feet west and seventy feet east, while the Crank shaft

Jackpot mine. is but fifty feet deep, with no development. On the Jackpot mine, operations have attained 260 feet deep on the west shaft and 226 feet on the east shaft, to the east of which a prospecting pit, sunk seventy-five feet deep on the edge of a swamp, is the most easterly opening on the vein. Some developments were made on the Jackpot mine, last summer, by the Leipsigate Mining Company who contemplate resuming operations next spring.

Structure of vein. The western portion of the vein operated by the Micmac company has a general course of N. 57° E. magnetic, for the first 700 feet, and dips north at an angle of 70° to 60°, after which it divides into two branches: the Crank shaft vein running N. 53° E., and dipping north angle 70°, and the Jackpot vein curving gradually northward until it runs N. 21° E. to the edge of a swamp where it is concealed. As the strata strike N. 45° E., and dip south angle 45°, their intersections with the Micmac portion of the vein, as well as with the Crank shaft vein, pitch eastward at a low angle while with the Jackpot vein, they pitch westward.

As far as developments have gone in the Micmac mine, to the west of the main shaft, the pay-ore lies in a series of shoots or chimneys, at the intersections of the vein with certain strata, averaging twenty-five feet in height and several inches thick, pitching east at an angle of 7° and occurring at intervals of ten to twenty feet, much in the same manner as in the old German mine above referred to. But to the east of the main shaft the pay-ore occurs in irregular bodies with a tendency to pitch westward at about 75°, and probably coincides with the branching off of the main fissure, which occurs at the eastern end of the workings.

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*Summary Report, Geol. Survey, Can., 1903, pp. 183-184.

Permanency of ore-shoots.

The recurrence of the ore-shoots in regular and close succession and the uniformity of the ore values have thus been proved in actual practice at the Micmac mine to the depth of 500 feet and in systematic developments at the old "German" mine to a depth of 180 feet. Such favourable conditions are, perhaps, not met with in any other known fissure vein in the province, and they should encourage the companies to rapidly push their develcpments to greater depth and establish payable and permanent mines.

Good ore has been found also on the north branch of the fissure to a depth of 260 feet in the Jackpot mine and to 180 feet at the Mill shaft, in more or less regular shoots or patches, pitching west between 45° and 75°. These are probably formed by angling veins branching off from the main vein in an easterly direction.

The Crank shaft, fifty feet deep, proves the south branch of the fissure to be a strong vein, reaching seven feet in thickness, and showing metalliferous sulphides which should justify further developments. It is possible that this might be the most important branch of the fissure to the eastward, but the vein is unfortunately concealed by a swamp immediately east of the shaft, preventing surface examination in that direction.

Important relation of fissure to anticline.

It is important to draw attention to the fact that the fissure vein dips towards the anticlinal fold, and that, although it occurs over one half of a mile to the south of it, there is little doubt that it forms part of the system of fractures running up the axial plane of the fold through which the ascending mineralized solutions passed and were deposited at the most favourable places. This is another strong point in favour of the possibilities of deep mining in the fissure vein.

The production of the Micmac mine for the year 1904 was ;

	oz.	dwt.
From the ten-stamp mill 4,074 tons ore crushed.....	1,825	19
From the cyanide plant 3,044$\frac{2}{5}$ tons sands treated.....	535	3
Total.....	2,361	2

Values.

According to the returns received at the Department of Mines of Nova Scotia, the total production of Leipsigate district until January 1st, 1905, was :—27,702 tons crushed, for 9,454 oz. 8 dwt. 7 grains gold.

CLAM HARBOUR GOLD DISTRICT.

Clam Harbour district.

This new district is situated on the Atlantic coast, in Halifax county, forty-seven miles east of the city of Halifax, by the post road. A few days were spent in making a hurried survey of the district, and

a plan on the scale of 250 feet to one inch has since been compiled. It shows the general structure of the strata and gold bearing veins, and the probable zones of special enrichment along which prospecting should be prosecuted.

The strata have been folded into two anticlinal folds about 500 feet apart and into one intervening synclinal fold, running east and west, magnetic, slightly converging towards the west and pitching to the eastward.

A small fault runs at right angles to the folding and gives a right hand displacement of some ninety feet at the south anticline, decreasing to but a few feet at the north anticline.

The gold bearing quartz veins met with are of two kinds—the bedded veins or 'main leads,' following slate belts interlocked between heavy beds of quartzite or 'whin,' and the cross veins intersecting the strata, generally in a north-easterly and south-westerly direction.

Main leads.

The main leads are the most important and persistent veins. They appear to carry all the payable ore deposits.

The cross veins do not appear to contain gold in payable quantity, but their intersections with main leads often determine important ore-shoots, generally short horizontally, but probably of great extent and uniform values in depth. Thus the ore-shoots worked down to 122 feet at No. 1 shaft, just north of the engine house, and the shoot worked to sixty feet, east of the forge, are formed by the intersection of a cross-vein with main leads. This cross-vein is a good 'feeder,' and other pay-shoots may be looked for at its intersection with other main leads.

Saddle veins along three lines

The most important fact brought out by the surface developments is, that all the main leads, so far opened up on the apex of the folds, have proved auriferous, and all the pay values discovered are confined to these lines. From this fact and from the knowledge gained in the study of similar districts in the province, we may safely conclude that the axes of the three folds form three well-defined and distinct zones of special enrichment. It is, then, most desirable that systematic developments be made along the apex of the three folds, and more especially the anticlines on the surface and in depth, which will undoubtedly open up a great number of ore-shoots, all pitching east and probably extending to great depths.

CYANIDE PROCESS FOR THE EXTRACTION OF GOLD.*

Cyaniding.

Progress has been made in saving the refractory portion of the gold contained in the tailings.

It is now about four years since the first commercial cyanide plant was erected in the province, and, unfortunately, both that and the plant that succeeded it at Isaacs Harbour proved failures from a financial standpoint. Since that time, however, a plant with a capacity of about 50 tons per 24 hours, was erected by Mr. H. S. Badger, at the mine of the Micmac Mining company at Leipsigate, which has now been running profitably for some two years.

A duplicate of that plant, installed last summer, under the supervision of Mr. H. S. Badger, at Brookfield, also appears to be successful. Experiments have recently been conducted at the Boston-Richardson mine at Isaacs Harbour, with the object of installing there a plant, which, as the mill contains sixty stamps, will doubtless be larger in capacity than the two last named.

It is probable that many mines in the province could profitably erect small cyanide plants for the treatment of their tailings, which numerous assays, covering a number of years, have shown to be valuable.

DEEP GOLD MINING.

D'Arcy Weatherbe's report.

The following is an extract from Mr. D'Arcy Weatherbe's annual report on the gold mines of Nova Scotia, ending September 30, 1904.†

"At the annual meeting of the Nova Scotia Mining Society last winter, the question of gold mining was very thoroughly gone into during discussion, and many valuable interchanges of opinion regarding important points in connection therewith were given.

"The Government, anticipating a special discussion on the question of *deep mining*, on which they had legislated during the previous session, employed Mr. Faribault of the Geological Survey, to make a special report on the subject, which was gone into very fully. One direct result of this discussion was the amendment of the above legislation, so that aid to a deep shaft would be given by the Government to the whole sinking, from the surface to a depth of 2000 feet, instead of requiring the miner to do the first 500 feet of work at his own expense, as provided by the first Act. This amendment brought

*Rep. Dept. of Mines, N.S., 1904, p. 54.
†Report Dept. of Mines, N.S., 1904, p. 47.

forth several bona-fide applications for the aid almost immediately. In some of the districts to which these applications applied, Mr. Faribault's services were again used in reporting on their suitability. The districts where this aid was asked include Isaacs Harbour, Malaga, Caribou and Sherbrooke.

"It should be particularly mentioned, that the past season has marked a stage in Nova Scotia gold mining not before reached, two mines having attained vertical depths of 1000 feet or over, and at both places, Brookfield and Caribou, (over 100 miles apart), was gold found, presumably, in paying quantities.

"Although the returns for the past season, and more noticeably for the present season, are smaller than usual, this does not necessarily show a falling off in the industry. In fact it might rather tend to prove the suggestion that the day of the small miner and tributor are rapidly drawing to a close, the rich and small leads and chimneys being to a large extent exhausted to the depth considered profitable by small scale work.

"During the winter one of the largest producing districts, Sherbrooke, was practically closed by being cut off from fuel-supply on account of navigation closing earlier than usual.

"On the other hand large scale operations, preparatory, it is hoped, to an output of gold, larger in an increasing proportion, are in progress at several districts, and in one or two practically new localities prospecting of an intelligent character is being done."

On the Meteorite which fell near the Village of Shelburne, township of Melancthon, Ontario, in August 1904.

By Mr. Robert A. A. Johnston.

Shelburne meteorite.

In accordance with instructions received on September 16, last to proceed to Shelburne in the county of Dufferin, Ontario, to investigate the reported fall of a meteorite near that place, I left Ottawa the same evening by C. P. R., arriving at Shelburne the following day, and proceeded to the office of Mr. R. L. Mortimer, editor and proprietor of the Shelburne Free Press, who at once volunteered all the information he had regarding the fall, and furnished me with a number of newspaper notices concerning it: he further generously offered to accompany me to the scene of the fall, an offer I readily accepted. For these and

many other courtesies extended to me by this gentleman during my visit, I here record my grateful thanks. Pursuant to arrangement, I proceeded with Mr. Mortimer to the home of Mr. John Shields, east half of lot 8, concession 2, township of Melancthon.

Shield's statement.

Mr. Shields said that at about eight o'clock in the evening of Saturday, August 13, while he and several of his family, along with some friends, were engaged in conversation in his dining-room, they were suddenly disturbed by a heavy crashing noise such as would be occasioned by the collapse of a building ; this was immediately followed by a dull concussion like that of a heavy solid body striking the ground. An examination of the premises was immediately made to ascertain the cause of the disturbance, and it was noticed that the east end of the north wall of the house and the underside of the adjacent veranda roof were bespattered with mud, while the floor of the veranda was strewn with moist earth : further search resulted in the finding of a small excavation in the soil about two feet from the veranda with a small heap of fresh earth piled up between the excavation and the veranda. Some hours after, the loose earth, which partially filled the excavation, was removed, and at a depth of eighteen inches, Mr. Shields came upon the rock fragment which forms the subject of the first portion of this notice. When this fragment was removed, it was found that a partly charred bur *(Arctium)* had been buried beneath it, while a few charred leaves were picked up around the excavation. At the time of my visit, the excavation in the soil, as well as the mud-marks on the wall and veranda, were, for all practical purposes, in the same condition as at the time of the occurrences which have just been related, so that I was enabled to to take accurate notes regarding the effects produced by the fall. The excavation had a diameter of about twelve inches and, as stated before, a depth of approximately eighteen inches ; the sides of the excavation did not vary sensibly from the perpendicular, showing that the stone must have approached the surface of the earth at a very high angle. The major portion of the soil which had been displaced, formed a small heap to the south-east, or between the excavation and the veranda ; the remainder had been thrown beyond this in the same direction, much of it on the veranda floor and some of it over the wall of the house and the underside of the veranda roof. The mud-markings on the wall were confined to a well-defined section, about four feet across, at a distance of eight feet from the excavation ; the veranda roof, at the line where it comes in contact with the wall of the house, has a vertical height of about twelve feet from the ground, and, at this point, the markings were most abundant ; they were gener-

Shield's specimen.

ally from three to four inches across, indicating to what a comparatively slight extent the soil had been desintegrated. The fragment was found to weigh twelve pounds and a half (5·7 kilos); it is in the form of an irregular, angular block measuring 9x4x3½ inches and is marked by the pittings and corrugations characteristic of a large number of meteoritic bodies; exteriorly, it is coated with a smooth varnish-like glaze which, for the most part, is slightly lustrous and of a velvet-black colour; on one side of the specimen, however, the glaze has a brownish colour and is so thin that the texture of the underlying material is but faintly hidden beneath it; this side of the specimen does not appear to have been subjected to the friction of the atmosphere during as protracted a period as has the rest of the surface of the mass, and suggests that the fragment under discussion is a detached portion of a still larger mass, the separation having taken place at a comparatively low level of the earth's atmosphere. The glaze is furrowed in places by small cracks resulting, no doubt, from the sudden cooling of the surface after its first contact with the earth.

Texture.

A small piece had broken off one corner of the stone, and the surface thus exposed afforded the only available means of examining the real texture of the materials composing the mass. It has a chondritic structure,and mainly consists of a rather friable, moderately fine-grained, dark greenish gray silicate which is probably olivine; this is seen to inclose what looks like veinules of a bronze-yellow, rather brittle mineral having a metallic lustre and one well-marked cleavage; this mineral is probably meteoric pyrrhotite or troilite. No further detailed examination of the stone could be made as Mr. Shields was averse to having the specimen further desintegrated and was likewise disinclined to dispose of it either in whole or in part.

T. Johnston's statement.

From Mr. Shields' place I proceeded to the farm of Mr. Thomas Johnston, west half of lot 10, concession 2, of the township of Melancton, where, it was reported, a second meteorite had been found. Mr Mr. George Johnston, who was one of the actual observers of the phenomena attending the descent of the meteorite on the evening previously mentioned, was of the opinion that some peculiar object had fallen in the oatfield to the south of his house; not caring, however, to destroy any of his crop, Mr. Johnston deferred making any search until the grain was being harvested, on August 30, when he instituted a sharp watch from his seat on the binder for any unusual conditions of the soil. He was rewarded by finding, near the foot of a low crescent-shaped elevation, a small excavation rather more than a foot across, with a small heap of earth piled up alongside. He

at once called Mr. William Fleming, who was working in another portion of the field, who examined the spot with the result that a meteorite weighing twenty-eight pounds was found at a depth of about two feet from the surface. The sides of the hole were, to all appearance, perpendicular, but, as in the case of the "Shields" occurrence, the earth was thrown toward the south-east, showing conclusively that the bodies under discussion approached the surface of the earth from a north-westerly direction. A few days previous to my visit, Mr. Johnston had disposed of this specimen, for $200, to Mr. J. F. Gardner, a district superintendent of the Bell Telephone Company.

The remainder of the afternoon, until train-time, was spent in collecting whatever information was obtainable regarding the circumstances of the fall and then I returned to Toronto whither, I was given to understand, the "Johnston" specimen had been sent. I found, however, that M. Gardner was away from home and it was only after much difficulty and repeated inquiries that I was enabled, through the courtesy of an officer of the Bell Telephone Company, to obtain a view of the specimen and to make some notes regarding its size and appearance. It is, roughly speaking, a ploughshare-shaped mass measuring $11\frac{1}{2}$ x 9 x $6\frac{1}{2}$ inches and is enveloped in a black varnish-like coating of the same character as that observed in the "Shields" specimen; some portions of its surface are marked by the usual depressions and corrugations. Particular attention was paid to the possibility of there being a surface which might accord with the evidently newer surface observed on the "Shields" specimen, but in this respect I was unsuccessful; it might, however, be possible to correlate the two specimens in this respect, could they be examined side by side. Mr. Gardner has since sold this specimen for two hundred and seventy six dollars to Dr. Leon H. Borgstrom whose intention it is, I believe, to add this meteorite to the collection of the University of Helsingfors, Finland. A cast of this specimen, obtained from Dr. Borgstrom, has been placed in the museum of the Geological Survey Department.

Johnston specimen.

The "Shields" and "Johnston" specimens both belong to the class of meteorites known, under the British Museum system of classification, as the aerolites or meteorites, which consist, principally, of stony matter: until such time as they have been subjected to critical examination, this is as much as can definitely be stated regarding their character.

The impressions created in the minds of different persons who observed any of the phenomena attending the fall bear a very close relation, varying only in the details such as might be expected from differ-

ences of direction or distance from the occurrence. In the neighbourhood of the village of Shelburne, two distinct detonations were heard, described by some as resembling the firing of heavy ordnance in the distance, by others as loud drum-beats ; these were followed by a series of musical vibrations lasting several seconds.

Phenomena.

Mrs. Craven, who witnessed the fall from the front door of her residence in Shelburne, says that previous to the detonations she observed the object shooting through the air at a rapid rate, emitting sparks in its path and followed by a tail like that of a comet. At the time of the fall—about half an hour after sunset—the northern sky is described as being of a fiery-red colour while that to the westward was hidden by a dense black cloud. At the village of Tara, which lies about fifty miles in an almost direct north-west line from Shelburne, in the county of Bruce, the meteor was observed passing in a south-easterly direction almost directly overhead, and it was thought by some that it had falled close at hand ; indeed, it was even reported that a fragment had been picked up near there, but of this I have been unable to obtain any authentic confirmation, and it is doubtful whether any specimens of the fall have been found there. At Kincardine, about seventy miles a little to the north-west of Shelburne, it was seen as a brilliant object traversing the sky, leaving a shower of sparks behind. As seen from different points in the Muskoka lake country, the flight of this body afforded a magnificent spectacle. Mrs. R. R. Bongard of Toronto, who was at the time particularly well situated for observing the fall from an island near the middle of Lake Joseph—approximately eighty miles in a north-easterly direction from Shelburne—says that it was of surpassing brilliancy and a bright yellow colour. By some, it was thought to have fallen near-by ; the observed time and direction, however, leave no doubt as to its identity with the Shelburne fall.

Descriptions of a number of Canadian meteorites are to be found in different scientific journals but in addition to these and the two specimens noted above, a number of others (concerning which there is no available literature) are in the hands of private individuals.

A small amount of information has been collected, chiefly from private individuals, regarding observed phenomena which it is difficult to account for in any other way than by the fall of meteoric bodies. It has been found impracticable to make a satisfactory compilation of this information in time for the present report, but as soon as all the material can be collected for the purpose, a separate report, dealing with Canadian meteorites in general, will be issued.

Chemistry and Mineralogy.

By Dr. G. C. Hoffmann.

Reporting on the work done in these branches of the Survey's operations, Dr. Hoffmann says :—

'Conformably with the practice of former years, the work carried out in the chemical laboratory during the past year has been of a purely technical character, that is to say, it has been almost exclusively confined to the examination and analysis of such ores and minerals, etc., etc., as were considered likely to prove of more or less economic value and importance. Succintly stated, it embraced :—

'1. Analyses of several varieties of fossil fuel from various parts of the Dominion, namely of—Lignite, from certain seams not far from La Roche Percée, on the Souris river and from the vicinity of Halbrite, in the district of Assiniboia ; from a seam on Knee Hillcreek, Red Deer river, in the district of Alberta, North-west Territory ; from a seam on Coal creek, a tributary of the Yukon, Yukon territory and from a seam in the vicinity of Enderby, Yale district, in the province of British Columbia. Of lignitic coal, from a seam on the Souris river, in the vicinity of La Roche Percée, in the district of Assiniboia, and from a seam on a branch of Ruby creek—a tributary of Indian river, Yukon Territory. Of coal, from Debert river, Colchester county, and from the land of A. McLean, between McLelland brook and Vale colliery, Pictou county, in the province of Nova Scotia ; from the Bailey and C. W. Wetmore lot, two miles north-westerly of Flowers cove, Grand lake, Queens county, in the province of New Brunswick ; from a seam on the north side of the North Fork of the Old Man river, in the district of Alberta, as likewise from a seam not far from Morley, also in the district of Alberta ; and from Miller's workings on the Lewes river, Yukon Territory. Of anthracitic coal, from the fourth seam at the Canmore mine, and from number one seam of the Canmore mine, also from a seam in the mountain on the east branch of Kananaskis river, and from a seam on Sheep creek, in the district of Alberta, North-west Territory. Of semi-anthracite, from the Canadian Pacific Railway tunnels, Cascade mountain, and from the south branch of Sheep creek, in the district of Alberta, North-west Territory. Fossil Fuel.

'2. Analyses, partial, of samples of copper-ore from, among other localities,—La Tête, county of Charlotte, in the province of New Copper ore.

Brunswick ; from Oxford township, Sherbrooke county, in the province of Quebec ; from mining location No. 2,961, R. 455, in the district of Thunder bay, and from the township of Spragge, district of Algoma, in the province of Ontario.

Iron ore.

'3. Analyses, more or less complete, of several varieties of iron-ore namely of—A clay iron-stone from Collins gulch, Tulameen river district of Yale, province of British Columbia. Hematite, from a point about half a mile south of Grand Pré railway station, Kings county, in the province of New Brunswick, and from the Rocky mountains, south of Blairmore, in the district of Alberta, North-west Territory. Magnetite, from the twenty-seventh lot of the fourth concession of the township of North Crosby, Lanark county, in the province of Ontario ; from the eastern slope of the Rocky mountains, near Pincher creek, in the district of Alberta, North-west Territory ; and from a locality not far from Enderby, district of Yale, in the province of British Columbia.

Nickel and cobalt.

'4. Analyses, in regard to nickel and cobalt content, of numerous samples of arsenopyrite, pyrrhotite, pyrite, etc., of which among the many, may be mentioned—arsenopyrite from a vein not far from Hope, in the district of Yale, province of British Columbia. Pyrrohotite, from the west half of the tenth lot of the fourth concession of the township of Olden, Frontenac county, in the province of Ontario, and from near Ingall station on the line of the Canadian Pacific Railway, about thirty miles west of Keenora, (formerly Rat Portage) in the district of Rainy river, Ontario.

Limestones.

'5. Analyses of limestones (in continuation of the series of analyses of such stones already carried out, in connection with an inquiry into their individual merits for structural purposes, for the manufacture of lime, or of hydraulic cement, or for metallurgical purposes, etc.), including,—limestone, from three miles east of Brookfield station on the line of the Intercolonial Railway, Colchester county, province of Nova Scotia ; from the fifth lot of the fourth range, and from the eighth lot of the fourth range, of the township of Grenville, Argenteuil county ; from the immediate vicinity of Phillipsburg, in the township of St. Armand, Missisquoi county, and from the thirteenth lot of the first range of the township of Litchfield, Pontiac county, in the province of Quebec ; from Marble cove, on the north-east shore of Texada island, strait of Georgia, province of British Columbia. Of the foregoing limestones, that from the vicinity of Brookfield affords, when burnt, an excellent lime ; that from the immediate vicinity of Phillipsburg, takes a good polish and is well fitted for purposes of decoration, and when burnt it affords a very white and pure lime ; that

from the township of Litchfield is now extensively employed for the manufacture of lime; and that from Marble cove, where it occurs in almost unlimited quantity, is useful for ordinary purposes of construction, and taking a good polish is also well adapted for use as a marble; it likewise affords an excellent material for the manufacture of lime.

'6. The examination of samples of clay, from a very great number of localities, in regard to their suitability for the manufacture of bricks, ordinary building bricks or fire-bricks, tiles, sewer-pipes, terra-cotta, stone-ware, etc., some of the localities being—The vicinity of Baddeck, Victoria county, province of Nova Scotia; Dutch Valley road, Upper corner, Sussex, in the province of New Brunswick; from a boring two miles east of 'The Brook' village, township of Clarence, Russell county, and from the farm of M. F. Boyd, north of the town of St. Mary's, on the Stratford and St. Mary's road, Perth county, in the province of Ontario; from a deposit occurring on section 1 or 2, or both, of township 24, range 1, west of the 5th initial meridian, district of Alberta, North-west Territory; and from the vicinity of Enderby, Yale district, in the provinoe of British Columbia; et cetera. Clays.

'7. Analyses of natural waters—with the object of ascertaining their suitability for economic or technical purposes, or possible value from a medicinal point of view, from, among others, the following localities—a spring at Brook village, about seven miles south-east of the town of Mabou, Inverness county, and from a well in Granville centre, Annapolis county, in the province of Nova Scotia; from an artesian well on the east end of cadastral lot No. 52, in the first concession of the parish of St. Johns, seigniory of Longueil, St. Johns county, and from a boring on the east part of the Richelieu river on lot 86, first concession, in the parish of St. Athanase, seigniory of Bleury, Iberville county, in the province of Quebec; from the 'How' spring, on the fifteenth lot of concession B of the township of Fitzroy, Carleton county, and from an artesian well in Courtright, on the eighth lot of Front street, or Front concession, township of Moore, Lambton county, in the province of Ontario; from the workings of the coal mine at Hant, in the district of Alberta, North-west Territory; and from a hot spring near the city of Vancouver, district of New Westminster, in the province of British Columbia. Natural waters.

'8. Miscellaneous examinations, such as the examination and, in most instances, partial analysis of samples of—Argillaceous shale; pyroschists; graphitic schists; carbonaceous shale; bog-manganese: iron-ochres; marls; silts, &c. Miscellaneous.

Yukon gold.

'Some very noteworthy observations have been made, in the course of examining material obtained by Mr. Keele, from the riffles of sluice-boxes, in the course of placer gold-mining on Highet creek, a remote tributary of the Stewart, and at Dublin gulch, on Haggart creek, a tributary of the McQuesten, which also flows into the Stewart, Yukon Territory. The material from the first mentioned locality was found to contain small irregular-shaped fragments of native bismuth with, in some instances, a little attached native gold, and small water-worn nodules of an association of scheelite (calcium tungstate) with a little quartz; whilst that from Dublin gulch consisted very largely of more or less rounded grains of scheelite with a few intermixed particles of quartz and of hematite and a little native gold. Again, in a sample of gold-washings from the Lippy claim, Eldorado creek, in the Yukon district, which was sent for examination, aggregations of native gold with embedded particles of native lead were found. Scheelite, it may be observed, is a not unimportant source of tungsten, a metal employed

Tungsten.

in the manufacture of what is known as tungsten steel, its presence much increasing the hardness and tenacity of steel and otherwise generally improving its properties. As a result, this mineral is, when found in any quantity, of considerable commercial value. Until quite recently it had been met with, and that only in small, or comparatively small, quantities, at but two localities in Canada, one in the province of Quebec and the other in that of Nova Scotia, but since then it has been found, and that, it is said, in some quantity, at the Meteor mine, Springer creek, in the West Kootenay district, and on Hardscrabble creek, Cariboo district, in the province of British Columbia, specimens from both localities having been received by the writer for identification.

Statistics.

'The number of mineral specimens received during the period covered by this report for identification or the obtaining of information in regard to their economic value, amounted to six hundred and one. Of these, a large number were brought by visitors, to whom the desired information was communicated at the time of their calling, or failing that—owing to a more than mere cursory examination being necessary or when a partial or even complete analysis was considered desirable—it was subsequently conveyed to them by letter, whilst that sought for in regard to those sent from a distance was also, necessarily, communicated by mail.

'The number of letters personally written, in connection with the work just referred to, and which were mostly of the nature of reports embodying the results of the examination or analysis, as the case might be, amounted to three hundred and four, whilst the number of those received amounted to one hundred and six.

I have been very ably assisted by Mr. F. G. Wait in the general work of the laboratory. His close application to the same has enabled him to carry out a number of water analyses, several analyses of limestones and dolomites, some more or less partial analyses of iron ores, copper ores and manganese ores ; also many determinations of nickel in various minerals, and, in addition, a great variety of miscellaneous examinations.

The additions to the mineralogical and lithological section of the museum during the past year embraced :—

A.—Duplicates of specimens which were sent to the laboratory for examination.

Specimens examined.

Indurated clay, from the property of T. H. Patrick, Souris river, section 10, township 7, range 20, west of the principal meridian, province of Manitoba.

Anthracitic coal, from seam No. 4, north-west quarter of section 29, township 24, range 10, west of the fifth initial meridian, district of Alberta, North-west Territory.

Graphitic shale, from Victoria county, province of Nova Scotia.

Coal, from a seam on the North Forks of the Old Man river, section 35, township 10, range 3, west of the fifth initial meridian, district of Alberta, North-west Territory.

Hematite, from the property of Mr. Patrick Flynn, lot 23 B., range 6, of the township of Templeton, Ottawa county, province of Quebec.

Magnetite, from lot 27, concession 4, of the township of North Crosby, Lanark county, province of Ontario.

Lignites, from Knee Hill creek, a tributary of the Red Deer, district of Alberta, North-west Territory.

Clay from Okanagan Landing, Yale district, province of British Columbia.

B.—Collected by Members of the Staff Engaged in Field-work in Connection with the Survey.

Ami, Dr. H. M :—

Paving blocks of Nepean sandstone, Bishop's quarries, Carleton county, province of Ontario.

Barlow. Dr. A. E. :—

A large mass of nickel ore, consisting of niccolite through which is distributed a small quantity of native silver, a very little smaltite, and a small quantity of gangue, in part stained and coated with annabergite. From the vicinity of Haileybury, district of Nipissing, province of Ontario.

Brock, Prof. R. W. :—

(a) Arsenopyrite, holding some free gold, in a gangue of quartz. From the Lucky Jack claim, Poplar creek, West Kootenay district, province of British Columbia.

(b) An association of quartz with some talcose schist, carrying a small quantity of sphalerite, very small quantities of tetrahedrite, chalcopyrite, pyrite and galena, and a very little native silver. From the Spyglass claim, Poplar creek, West Kootenay district, province of British Columbia.

(c) Quartz carrying somewhat small quantities of galena and tetrahedrite, a small quantity of sphalerite, and a very little pyrite. From the Lucky Boy mine, Tour creek, West Kootenay district, province of British Columbia.

(d) An association of tetrahedrite and galena with a small quantity of pyrite, through which is distributed a little gangue. From the Silver Cup mine, South fork of Lardeau creek, West Kootenay district, province of British Columbia.

(*e.*) An association of sphalerite with very small quantities of galena, pyrite and chalcopyrite. From the Mother Lode claim, Poplar creek, West Kootenay district, province of British Columbia.

(*f.*) A cavernous, rust-stained quartz, carrying very small quantities of pyrite and chalcopyrite and a little free gold. From the Eva mine, Lexington mountain, half a mile north of the town of Camborne, West Kootenay district, province of British Columbia.

(*g.*) An association of arsenopyrite and pyrite in a gangue composed of quartz with a little feldspar. From the Hardy group, Lardeau river, West Kootenay district, province of British Columbia.

(*h.*) Fine masses of a yellowish-white, greenish-yellow and yellowish-green, subtranslucent to translucent, calcite having a fine-columnar, radiated and concentric structure. From the

Black Prince claim, Gainer creek, a tributary of the south fork of Lardeau creek, Trout lake, West Kootenay district, province of British Columbia.

Dowling, D. B., B.A. Sc.:—

(*a.*) Semi-anthracite, from C. P. R. tunnels, Cascade mountain, section 19, township 26, range 11 west of the 5th initial meridian, district of Alberta, North-west Territory.

(*b.*) Anthracitic coal, from pinch out north-west of slope, bottom of No. 1 seam, at the Canmore mine, section 29, township 24, range 10 west of the 5th initial meridian, district of Alberta, North-west Territory.

(*c.*) Anthracitic coal, from a vertical seam high up the mountain on the east branch of Kananaskis river, a tributary of the Bow, five miles below the head of Elbow river, section 33, township 19, range 8 west of the 5th initial meridian, district of Alberta, North-west Territory.

(*d.*) Semi-anthracite, from the Costigan seam, forks of Panther river, section 33, township 30, range 11 west of the fifth initial meridian, district of Alberta, North-west Territory.

(*e.*) Anthracitic coal, from the five foot seven inch Costigan seam, Panther river, post B, section 1, township 31, range 12 west of the fifth initial meridian, district of Alberta, North-west Territory.

(*f.*) Anthracitic coal, from lower seam, three feet six inches thick, Panther river, post B, section, township, range, &c., same as given under "*e.*"

(*g.*) Anthracitic coal, from three foot six inch seam, Panther river, post D, section, township, range, &c., same as given under "*e.*"

(*h.*) Semi-anthracite, from the two foot seam, section 8, township 30, range 12 west of the 5th initial meridian, district of Alberta, North-west Territory.

(*i.*) Semi-anthracite, from the five foot seam, Panther river, post D, section, township, range, &c., same as given under "*h.*"

(*j.*) Coal, from a five foot seam, head of Snow creek, between Panther and Red Deer rivers, district of Alberta, North-west Territory.

Ells, Dr. R. W.:—

(*a.*) Coal, from tunnel on lower seam at Coal Gully, Yale district, province of British Columbia.

(*b.*) Coal, from lot 1267, on creek running into Quilchena creek, Yale district, province of British Columbia.

(*c.*) Coal, from southerly outcrop of seam on Coldwater river, Yale district, province of British Columbia.

Faribault, E. R., B.A.:—

(*a.*) An association of quartz with some chloritic schist, carrying small quantities of pyrrhotite, pyrite, sphalerite, galena and arsenopyrite and some native gold. From the property of the Plough Lead Mining Co., Wine Harbour, Guysborough Co., province of Nova Scotia.

(*b.*) An intimate association of hydrated peroxides of iron and manganese—so-called Van Dyke paint or "Umber"—from what is known as the Paint mine, Chester Basin, Lunenburg Co., province of Nova Scotia.

(*c.*) A slightly ferruginous and manganiferous dolomitic limestone, from the so-called Paint mine, Chester Basin, Lunenburg Co., province of Nova Scotia.

(*d.*) An association of quartz, feldspar and mica, with a little scapolite and trifling quantities of fluorite and of chlorite, and small quantities of molybdenite. From vein in granite, right bank of Larder river, one mile south of Old Dalhousie road, New Ross, Lunenburg county, province of Nova Scotia.

(*e.*) An association of quartz, feldspar and mica, with small quantities of calcite and fluorite, holding a little molybdenite and sphalerite, and some particles of chalcopyrite and pyrite. From vein in granite on Caraway island, in Lake Ramsay, Lunenburg county, province of Nova Scotia.

(*f.*) An association of quartz with some chloritic schist, carrying small quantities of chalcopyrite and pyrite, somewhat less of galena, a little sphalerite, and very small quantities of native gold. From the Borden Lead, West Lake mine, Mount Uniacke, Hants county, province of Nova Scotia.

(*g.*) Crystals of smoky quartz and mica, from a vein in granite, at top of hill just west of Joe Bill brook, one mile west of Setterensville P.O., Lunenburg county, Nova Scotia.

(*h.*) An association of quartz with a little chloritic schist, and a very small quantity of calcite, carrying a somewhat large quantity of mispickel, a small quantity of galena, a little chalcopyrite, and a very small quantity of sphalerite and of

pyrrhotite. From the Baltimore-Nova Scotia Mining Company's Caribou mines, Halifax county, province of Nova Scotia.

(i.) Limonite, from prospecting pit on vein in granite, two miles north-east of north end of Wallaback lake, New Ross, Lunenburg county, province of Nova Scotia. From surface.

(j.) An association of specular iron and manganite, from prospecting pit referred to under *(i.)* From a depth of six feet.

(k.) A crystal of almandite, from head of Sherbrooke lake, Lunenburg county, province of Nova Scotia.

Johnston, R. A. A. :—

(a.) Copper, native, two large masses of, from the Sovereign claim in Aspen Grove camp, at the head of Otter creek, Yale district, province of British Columbia.

(b.) Chalcedony, three large masses and two smaller fragments of, from the Maggie claim in Aspen Grove camp, at the head of Otter creek, Yale district, province of British Columbia.

(c.) Idocrase, from Charley's Cove, north-west side of Frye's island, Charlotte county, province of New Brunswick.

Keele, Joseph, B. A. Sc. :—

(a.) Gold, native, filiform and nuggety, from Highet creek, a remote tributary of the Stewart, Yukon Territory.

(b.) Concentrates, obtained in the course of placer gold-mining on Highet creek, a remote tributary of Stewart river, Yukon Territory.

(c.) Concentrates, obtained in the course of placer gold mining on Duncan creek, Yukon Territory.

(d.) Concentrates, obtained in the course of placer gold mining at Dublin gulch, on Haggart creek, a tributary of the McQuesten, Yukon Territory.

McConnell, R. G., B.A.:—

(*a.*) Lignitic coal, from a seam on a branch of Ruby creek, a tributary of Indian river, about seven miles up from its mouth, Yukon district, North-west Territory.

(*b.*) Lignite, from a seam on Coal creek, a tributary of the Yukon, eleven miles and three-quarters up from its mouth, Yukon Territory.

(*c.*) Coal, from Miller's workings on the Lewes, about twenty miles above Five-Finger rapids, Yukon Territory.

McKinnon, A. T.:—

Hematite, from about half a mile south of Grand Pré railway station, Kings county, province of Nova Scotia.

Willimott, C. W.:—

(*a.*) Asbestus (fibrous serpentine, chrysotile), from Johnson's mine, on the twenty-seventh lot of the sixth range of the township of Thetford, Megantic Co., province of Quebec.

(*b.*) Idem, dressed.

(*Received as presentations.*)

Archibald, Sheriff, and Jas. A. Crease, per E. R. Faribault, B.A. Sc. (Survey), a sample of ore from the Borden lead, West Lake mine, Mount Uniacke, Hants Co., province of Nova Scotia.

Deville, E., Surveyor General, Ottawa:—

(*a.*) Gypsum, var. alabaster, from the south-east quarter of section 14, township 33, range 8 west of the first meridian, province of Manitoba.

(*b.*) Gypsum, var. selenite, from the south-west quarter of section 4, township 33, range 8 west of the 1st meridian, province of Manitoba.

(*c.*) Gypsum, white, fine-granular, massive, from the south-west quarter of section 23, township 33, range 8 west of the first meridian, province of Manitoba.

(*d.*) Gypsum, brownish-white, somewhat fine-granular, massive, from the north-east quarter of section 3, township 33, range 8 west of the 1st meridian, province of Manitoba.

(*e.*) Limestone, very fine-granular, almost compact, from the Narrows of Lake Manitoba, province of Manitoba.

(*f.*) Selenite, from the mud banks on the Simonette river where it is crossed by the sixth meridian, district of Alberta, North-west Territory.

Lonergan, Daniel, per E. R. Faribault (Survey):—

Almandite, crystal of, from head of Sherbrooke lake, Lunenburg Co., province of Nova Scotia.

Lordley, Capt., Chester, Lunenburg Co., Nova Scotia:—

Infusorial earth, from Sabody pond, east side of Middle river, two miles above the bridge, Chester, Lunenburg Co., province of Nova Scotia.

Mitchell, W. D., New Denver, B.C.:—

(*a.*) Galena, from the Queen Bess mine, Silver mountain, West Kootenay district, B.C.

(*b.*) Galena and tetrahedrite, association of, in a quartzose gangue from a claim on Goat mountain, West Kootenay district, B.C.

(*c.*) Galena, from the Idaho mine, West Kootenay district, B.C.

(*d.*) Galena and tetrahedrite, in a gangue of quartz, from the Sligo vein, Capella group, Goat mountain, West Kootenay district, B.C.

(*e.*) Tetrahedrite, pyrite and a little sphalerite, in a gangue of quartz, from the Kintora claim, Mollie Hughes group, West Kootenay district, B.C.

(*f.*) Galena, from a claim on Blind Springs hill, Blind Springs mining district, Mono Co., Cal., U.S.A.

(*g.*) Bournonite, from same claim as specimen "*f.*"

(*h.*) Silver, native, in a quartzo-feldspathic gangue, from the same claim as the two preceding specimens; and the following from the Bosun mine, near New Denver, West Kootenay district, B.C.:

(*i.*) Galena, fine-granular, almost compact, massive.

(*j.*) Galena, very fine-crystalline, massive.

(*k.*) Galena, fine-granular, massive, with which is associated a little sphalerite, chalcopyrite and a trifling quantity of ruby-silver.

(*l.*) Sphalerite, with a little disseminated pyrite.

(*m.*) Galena, cleavable, somewhat coarse-crystalline.

(*n.*) Galena, very fine-granular, massive, locally known as "steel ore."

(*o.*) Pyrite, an association of, with sphalerite.

(*p.*) Galena, very fine-crystalline, almost compact, locally known as "wavy galena."

(*q.*) Galena, very fine-crystalline-massive, through which is distributed a little chalcopyrite.

Nattress, Rev, Thomas, B.A., Amherstburg, Ontario, per J. F. Whiteaves (survey):—

The following, obtained in the course of excavating the bed of the Detroit river at Amherstburg, Essex county, Ontario:—

(*a.*) Celestite, large, isolated, more or less perfect, tabular crystals of—two specimens.

(b.) Celestite, blüish, crystal aggregates—nine specimens.

(c.) Calcite, var. dog-tooth spar, of a yellowish-brown colour—four specimens.

(d.) Dolomite, with inclusions of bituminous matter.

(e.) Quartzite, white, compact, with some attached celesite.

Smith, F. B., inspector of mines, Calgary, N.W.T. :—

Iron rail, part of, from workings of the coal mine at Harts, Alberta, N.W.T., illustrating the action of the mine water on same.

Soues, F., gold commissioner, Clinton, B.C. :—

(a.) Agate-jasper, from Big Bar, on the Fraser river, Lillooet district, province of British Columbia.

(b.) Scheelite, from Hardscrabble creek, Cariboo district, province of British Columbia.

Spencer, Dr. D., Ottawa, Canada :—

Peat briquettes, from the Newington peat works, township of Osnabruck, Stormont county, Ontario.

Thomlinson, William, mining agent, New Denver, B.C. :—

Scheelite, from the Meteor mine, Springer creek, West Kootenay district, province of British Columbia.

Mineral educationa collections.

Mr. C. W. Wilimott was engaged during the early part of the year in carrying out a lengthy series of experiments with ochres, clays and certain other minerals, with a view of demonstrating their utility as mineral paints. This accomplished, his time was mainly occupied in making up collections of minerals and rocks for distribution to various Canadian educational institutions. The following is a list of those to which such collections have been sent :—

		Specimens.
Collegiate Institute, Galt, Ont., consisting of		26
Toronto University, Toronto, Ont.	"	20
Collegiate Institute, Ingersoll, Ont.	"	100
High school, Petrolia, Ont.	"	100
Convent school, Sydney Mines, N.S.	"	75
Aberdeen school, St. John, N.B.	"	75
Convent, Whitney Pier, Sydney, N.S.	"	75
High school, Campbellford, Ont.	"	100
Huron Institute, Collingwood, Ont.	"	100
High school, Sydenham, Ont.	"	100
Col. Inst., Harbord street, Toronto, Ont.	"	100
High school, Keenora, Ont.	"	100
Central school, Chatham, Ont.	"	75
Lachine academy, Lachine, Que.	"	100
McDonald school, Middleton, N.S.	"	75

Collections has also been supplied to :—

Rev. J. D. Borthwick, Montreal, Q., consisting of		37
A. C. Bell, M.P., New Glasgow, N.S.	"	52
C. F. Speipper, Trout lake, B.C.	"	45
Can. Commercial agent, Paris, France	"	62
Le Figaro, Paris, France	"	75
Chronicle Reference Library, Halifax, N.S.	"	75
Total number of specimens		1,567

He has also, at intervals, visited, for the purpose of procuring further material for the making up of such collections, the townships of Hull, Wakefield, Buckingham, Villeneuve and Egan, in Ottawa county, province of Quebec, of Ross and Bromley in Renfrew county, that of Bancroft in Hastings county, and those of Calvin and Cameron, in the district of Nipissing, in the province of Ontario.

'While so engaged, he collected :—

Serpentine limestone		some 200 lbs.
Jasper	"	150 "
Albite	"	200 "
Microcline	"	200 "
Quartz	"	100 "
Fluorite, in calcite	"	100 "
Amazon stone	"	400 "
Limestone	"	150 "
Molybdenite, in the gangue	"	250 "
Molybdenite, pure	"	35 "
Shellmarl	"	100 "
Serpentine	"	50 "

'The results of Mr. Willimott's experiments in connection with mineral pigments—above referred to, have been incorporated by him, together with some observations on mineral occurrences, which he made while engaged in collecting minerals, in a separate report—see, page 229.

Mapping and Engraving.

Mr. C. O. Senécal, Geographer and Chief Draughtsman.

Mr. C. O. Senécal, reports as follows :—

"I have the honour to present, herewith, a summary of the work accomplished under my supervision during the past calendar year :—

Assignment of work.

Mr. L. N. Richard prepared the colour copy of the Haliburton sheet for the lithographer and part of the engraver's copy of a geological map of the island of Montreal and vicinity. He has also drawn a map of the southern part of the province of Quebec for photolithographic reproduction. He made reductions of astronomical observations, various computations, and tested field instruments, etc.

Mr. Richard was on sick leave from April 2 to June 27. From August 18 to the end of September he was on field duty and spent the remainder of the year in plotting his surveys.

Mr. J. A. Robert spent the greater part of his time on the compilation of Mr. H. Fletcher's map of Nova Scotia, covering sheets Nos. 64, 65, 66, 73, 74, 75, 83 and 84. He traced, for engraving, sheets Nos. 65 and 74; prepared the colour copy of six Cumberland county sheets, and attended to the revision and correction of Nova Scotia map proofs. He was also on field duty from August 20 to end of September, and has since been occupied in calculations of latitude and departure.

Mr. O. E. Prud'homme compiled the map of Southern Quebec; made additions to the eastern sheet of the Dominion Map and to the Lake Nipigon sheets Nos. 11 and 17 of the Northern Ontario series, from recent surveys. He prepared the colour copy for the geological and topographical editions of the Klondike map; the relief copy in crayon-shading of the map of Boundary Creek mining district, B. C., and copies for photolithographic reproduction of the Winisk river map; of a sketch map of the Lardeau mining district, B. C.; of a sketch map showing Cretaceous rocks of Alberta district, and of a geological section of Doliver mine, N.S. He also lettered the Perth sheet (No. 119, Ont.) and the map of Lake Temagami iron ranges.

Mr. V. Perrin compiled the Winisk river map, and completed the Ignace sheet, No. 5, North-western Ontario series He has in hand the compilation of Mr. McInnes' recent surveys of the Headwaters of Winisk river.

Mr. James McGee was, on January 12th, appointed general assistant and type-writer. It is with regret that I have to report his premature death which occured on May 12th, from injuries he had sustained in an accident. He was replaced by his brother Mr. J. J. McGee, jr., who reported himself for duty on 1st of June. Mr. McGee was on field work from August 20th to the end of October.

Mr F. O'Farrell was appointed as draughtsman on October 24th and was instructed to assist Mr. E. R. Faribault in the compilation of this officer's surveys of Halifax and Hants counties, Nova Scotia.

Mr. P. Frèreault traced, for engraving, the Ottawa and Cornwall geological sheet, Ontario series; the map of Elsie and Murray mines, Sudbury mining district, Ont. and additions to map of Boundary Creek

mining district, B. C. He also prepared, for photolithography, a map of North-western Ontario; a sketch map of the vicinity of the Klondike; a section of West Lake mine, N.S., and made several zinc-cut drawings for various reports. Mr. Frèreault was on sick leave from October 14, to November 24.

Messrs. W. J. Wilson, J. Keele, O. O'Sullivan and J. F. E. Johnston having been transferred to the field staff, contributed only a small portion of their time to mapping work. Mr. Keele compiled the map of Elsie and Murray mines, Ont.; a sketch map of the vicinity of the Klondike, a map of Lake Temagami iron ranges, and partly prepared the copies of the same for engraving and lithographing. M. O'Sullivan devoted some time to the compilation of the Nova Scotia map-sheets of Halifax county. He is at present preparing a preliminary map of the west coast of James bay, to accompany his summary report 1904.

Mr. Wilson finished the construction of his preliminary map of North-western Ontario.

Mapping by field-officers.

The following maps were compiled by field-officers from their respective surveys:—

Continuation of the mapping of the Lardeau mining district, B. C., on the 2-mile scale, by Mr. W. H. Boyd.

Costigan coal-field, Alberta, 40 chains to one inch, with sections and perspective view, by Mr. D. B. Dowling.

A contour geological map of Yamaska mountain, Que., scale 20 chains to one inch by Dr. G. A. Young.

Plans of the following gold districts of Nova Scotia by Mr. E. R. Faribault:—

Miller lake, Halifax,	county,	Scale,	500 ft. to 1 inch.
Clam Harbour, "	"	"	250 ft. "
Malaga, Queens county.....		"	250 ft. "
Brookfield, county.....		"	250 ft. "
Leipsigate, Lunenburg county,		"	500 ft. "

A geological map of Arctic Canada on the scale of 50 miles to 1 inch, showing the cruise made by the *Neptune* in 1903-4 under the command of Mr. A. P. Low, is also under construction by Mr. C. F. King. This interesting map is expected to be placed, shortly, in the engraver's hands.

Routine work.

The routine work of correcting map proofs, making sun-prints, tracings, lists of repairs of instruments, projections, etc., was divided among the staff and attended to.

Base-lines in Nova Scotia.

Having received instructions to make an accurate transit and chain survey of the Dominion Atlantic railway and of the Halifax and South-western railway of Nova Scotia for the purpose of locating and tying in the detailed surveys of Messrs. H. Fletcher and E. R. Faribault, extending in Kings, Annapolis and Lunenburg counties, I left for the field on August 19, accompanied by Mr. L. N. Richard as transit man and Messrs. J. A. Robert and J. J. McGee, jr., as chainmen. Traverse lines checked by careful azimuth observations, were run between Port George and Bridgewater—thus connecting opposite coasts of Nova Scotia—and between Middleton junction and Hantsport, tying with my survey of 1902 on the Kings—Hants county line. From the data of these traverses, the geographical position of the following points, depending upon the latitude and longitude of Hantsport and Bridgewater, as given on Admiralty charts Nos. 353 and 342, was computed.

Locality.	Latitude.	Longitude.
	° ′ ″	° ′ ″
Hantsport station, D. A. Ry	45 4 5	64 10 40
Kentvllle " "	45 4 40	64 29 54
Middleton " "	44 56 33	65 4 20
Port George, P. O	45 0 4	65 9 28
New Germany station, H. & S.W.Ry	44 32 43	64 43 26
Bridgewater " " "	44 22 44	64 30 57

Geographic board.

The meetings of the Geographic Board have been regularly attended, and lists of place-names covering maps under construction have been submitted.

Accompanying maps.

The following eight maps, illustrating part of the progress made in the field last summer, accompany the present Summary Report and Part A., Annual Report, Vol. XVI :—

No. 889.—Exploration from Lac Seul to Severn lake, Keewatin, scale, 35 miles to 1 inch.

No. 890.—Coal basins of Nicola river valley, B.C., scale, 80 chains to 1 inch.

No. 891.—Duncan Creek mining district, Yukon, scale 6 miles to 1 inch.

No. 892.—Costigan coal-field, Alberta, scale, 40 chains to 1 inch.

No. 894.—Kluane mining district, Yukon, scale, 6 miles to 1 inch.

No. 895.—West coast of James bay, Keewatin, scale, 16 miles to 1 inch.

No. 897.—Nictaux and Torbrook iron district, N.S., scale, 25 chains to 1 inch.

No. 898.—Bruce Mines and Debarats district, Ontario, scale, 1 mile to 1 inch.

Maps in progress.

Besides the above mentioned maps, there are at present twenty-four in various stages of progress in the hands of the King's Printer, including the Bancroft and Haliburton (Ont.), the Klondike and the Boundary Creek (B.C.) maps, the editions of which are expected at an early date. Of that number, eight new geological sheets of the systematic series of Nova Scotia were sent for engraving on copper.

Field-instruments.

The examination and repairing of field-instruments was, as usual, attended to, and the following new instruments were purchased :—

One Bridges-Lee Photo-theodolite, from L. Casella, London, Eng.

One 8-inch graduated circle for transit No. 5, from W. & L. E. Gurley, Troy, N.Y.

One Ross-Zeiss copying lens, series vii a, $6\frac{1}{2}$ x $8\frac{1}{2}$, from Ross, London, England.

One camera, 5 x 7 without lens, No. 19, from R. F. Smith, Montreal, Que.

Two cameras, 4 x 5, Nos. 27 and 29, from W. J. Topley, Ottawa, Ont.

One 50-foot steel tape, No. 21, from Department of Stationery, Ottawa.

Three 66-foot Chesterman tapes Nos. 5, 11 and 34, from Department of Stationery, Ottawa.

Two pocket compasses Nos. 41 and 42 from McDougall Hardware Co., Ottawa.

Correspondence.

The number of letters, memoranda, specification sheets, etc., relating to map-work, was 264 sent and 160 received.

Maps published.

The following is a list of maps, plans and diagrams which have been received from the King's Printer during the past calendar year :—

Catalogue number.	Description.	Area in sq. miles.
792	British Columbia—West Kootenay geological sheet, Scale, 4 miles to 1 inch	6,400
853	British Columbia—Sketch map of Lardeau and Trout Lake mineral belts, West Kootenay district, Scale 8 miles to 1 inch.	
842	Athabaska district—Map of Peace and Athabaska rivers, scale 32 miles to 1 inch.	
845	Alberta district—Sketch map of Cretaceous coal-bearing rocks, scale 2 miles to 1 inch.	
846	Keewatin—Map of Winisk river, scale 16 miles to 1 inch.	
820	Ontario—Geological map of Sudbury mining region, (Sudbury map,) scale, 1 mile to 1 inch	208
824 et 825	Ontario—Geological map of vicinity of Copper Cliff, Sudbury mining district, in two sheets, scale 400 feet to 1 inch	abt. $8\frac{1}{2}$
864	Ontario—Geological map of Elsie and Murray mine, Sudbury mining district, scale 400 feet to 1 inch	$1\frac{1}{2}$
852	Ontario—Geological map of North-east Arm and Vermilion iron ranges, Lake Temagami, scale 40 chains to 1 inch.	
789	Ontario—Perth geological sheet, (No. 119,) scale 4 miles to 1 inch	3,456
847	Ontario—Preliminary map of the north-western part of the province, north of Lake Superior, scale 16 miles to 1 inch.	
848	Quebec—Plan of recent landslide on Lièvre river, near Buckingham, scale 12 chains to 1 inch.	
875	Quebec—Map of city of Montreal and vicinity showing location of wells, scale 3,000 feet to 1 inch.	
876	Quebec—Graphic diagrams showing the relations of groups of wells in the city of Montreal and vicinity.	
866	Quebec—Map of the older copper-bearing rocks of Southern Quebec.	
833	Nova Scotia—Geological map of Pictou coalfield, scale 25 chains to 1 inch	66
826	Nova Scotia—Apple river geological sheet, (Nos. 100 & 101) ; Scale 1 mile to 1 inch	473
832	Nova Scotia—Plan and section of Isaac Harbour Gold district, scale 500 feet to 1 inch.	
843	Nova Scotia—Plan and section of Cochran Hill gold district, scale 500 feet to 1 inch.	
844	Nova Scotia—Plan and section of Gold River gold district, scale 250 feet to 1 inch.	
849	Nova Scotia—Sections of West Lake mine, Mount Uniacke gold district.	
850	Nova Scotia—Transverse section of Doliver mine, Upper Isaac Harbour gold district.	
	Also eight diagrams to illustrate the mineral production of Canada and several zinc-cuts to accompany various reports.	

Palæontology and Zoology.

By Dr. J. F. Whiteaves.

Dr. Whiteaves reports that the study of the fossils of the Silurian rocks of the Winisk river (Keewatin), collected by Mr. W. McInnes in the summer season of 1903, which was commenced late in the fall of that year, has been completed as far as practicable, and that a list of the species represented therein has been prepared for publication in Mr. McInnes' report.

Three parts of the third volume of "Palæozoic Fossils" have already been published by this Survey, and it is intended that the fourth part shall consist of a descriptive and illustrated report on the fossils of the Silurian (Upper Silurian) rocks of Keewatin, Manitoba and Saskatchewan now, in its Museum. A considerable portion of the letter press of this report, embracing all that refers to fossils of Keewatin, has been written during the year.

A preliminary examination has been made of the fossils of the palæozoic rocks of the Kabinakagami, Little Current, Nagagami and Drowning rivers, in Northern Ontario, collected by Messrs. W. J. Wilson and O. O'Sullivan in 1903. At one locality on the Little Current river the fossil fauna has rather a "Hudson river" facies, but everywhere else on these rivers where fossils were collected the rocks appear to be of Silurian (Upper Silurian) age.

In 1901 Dr. H. M. Ami collected some fine specimens of a species of *Trocholites* from the Trenton limestone at the Natural Steps, on the Montmorency river, in the province of Quebec. A study of these specimens has led to a recent revision of the Canadian species of that genus and to a reconsideration of the geological horizons indicated by each. The conclusions arrived at on these points are embodied in a paper published in the "Ottawa Naturalist" for April, 1904, and entitled "The Canadian species of Trocholites."

Another paper, entitled "Description of a new genus and species of rugose corals from the Silurian rocks of Manitoba," and based upon specimens collected by Mr. J. B. Tyrrell in 1897, was published in the same journal for September, 1904.

Twenty-four collections of fossils have been sent to the writer during the year, and nineteen of these have been examined and

studied. Four of these collections are from the neighbourhood of Ottawa, forwarded by Mr. Walter R. Billings; one collection is from the Utica shale or slate at Collingwood, Ont., sent by the Rev. Thos. Nattress; five, not yet critically examined, are from the bed of the Detroit river at Amherstburg, also sent by the Rev. Thos. Nattress; one is from the carboniferous rocks at Nevada, consigned by Mr. W. F. Ferrier; the remaining thirteen are from the cretaceous rocks at various localities on Vancouver island, sent by Miss Wilson and Mr. Walter Harvey. Some specimens of exceptional interest in these collections have been acquired for the Museum of the Survey, and the rest have been named and returned. Two of those presented by Mr. Billings have been described by the writer and figured in a paper recently contributed to the "American Geologist" entitled "Notes on some siphuncles of Canadian Endoceratidæ, with descriptions of two supposed new species of *Nanno*." And, the two crinoids and five of the best heart urchins referred to in another paper by the writer, published in the "American Journal of Science" for October, 1904, entitled "*Uintacrinus* and *Hemiaster* in the Vancouver Cretaceous," were presented by Miss Wilson and Mr. Harvey.

A number of fossils from the Vancouver Cretaceous which were loaned by the Provincial Museum at Victoria and by Mr. Harvey during the preparation of Mesozoic Fossils, vol. I, part 5, have been named and returned.

In zoology, the extensive series of land and water shells collected last summer by Mr. McInnes at various localities in Keewatin have been examined and studied. It has been found to consist of numerous specimens of seven species of land shells and of twenty-five species of fresh-water shells, a list of which has been prepared for publication in Mr. McInnes' report. Small collections of land and fresh-water shells from Keewatin, British Columbia, and the Yukon territory, as well as a number of foreign shells, have been named for Mr. O'Sullivan, Dr. Fletcher, Mr. Keele and the St. Laurent convent near Montreal.

At the request of Professor Verrill, who is engaged in the preparation of an illustrated monograph of the recent echinodermata of the Pacific coast of North America, which is to form one of the volumes to be published by the Harriman Alaska Expedition, nearly the whole of the survey's large and important collection of starfishes and brittle stars from the seaboard of British Columbia, has been sent to him for examination and study.

A "Bibliography of Canadian Zoology for the year 1903, exclusive of Entomology" has been prepared for publication in the Transactions of the Royal Society of Canada for 1904.

Three short zoological papers have been published in the "Ottawa Naturalist" during the year. One of these records the discovery by Dr. Bell, in 1885, of a living colony of a common European land-snail *(Helicigona arbustorum)* on grassy slopes facing the sea, near the narrows of St. John's harbour, Newfoundland. This seems to be the first instance of this species being found, in a living state, on the American side of the Atlantic. The second paper entitled "A White Pelican at Manotick," is descriptive of a fine adult female of the American white pelican *(Pelecanus erythrohynchus)* shot last May on the Rideau river at Manotick, fourteen miles south of Ottawa. The specimen is now in the museum of the survey. The third paper is a short note on the recent acquisition, by the Provincial Museum at Halifax, of an adult male of the brown pelican *(Pelecanus fuscus)* shot at Louisburg, Cape Breton island, also in May last.

During Dr. Bell's absence from Ottawa, for about six weeks last summer, the duties of acting deputy head and director have been performed by the writer.

The number of official letters received and answered in 1904, has been about as usual.

The following specimens have been received either from members of the staff, or from employees of the department in 1904 :—

Ells, Dr. R. W. :—

Seventy-five specimens of fossil plants from the brown shales at Quilchena creek, Nicola river valley, Yale district, B.C. About fifty fossils, including three ammonites, from shales on the top of the mountain north of the Nicola river, three miles west of Nicola lake, B.C. Sixteen fossils from carbonaceous shales at Coal gully, Nicola coal basin, B.C.

Chalmers, Dr. R. W. :—

Six fossil fresh-water shells from the clays of the Lake St. John district at Roberval, P.Q.

McConnell, R. G. :—

Five fossils from the Kluane mining district, Yukon territory.

Low, A, P. :—

A collection of fossils, from the Silurian limestone of North Devon island. Collections of fossils from Silurian limestones, Southampton island, Hudson bay, six complete specimens of musk-ox including four males, one female and one young male. Specimens of arctic wolf, fox, lemming, marmot and hare. Specimens of birds breeding in the arctic, together with many rare birds eggs :—including those of the Snow Goose, Whistling Swan, Parasitic and Long-tailed Jaeger, Arctic Tern, Sabine Gull, Glaucous Gull, Herring Gull, American and King Eider, Red Phalarope, and Leash Sandpiper.

A large collection of marine and fresh-water invertebrates from Fullerton, Hudson bay and Port Burwell.

Ami, Dr. H. M. :—

About 500 fossils from the Silurian rocks along the Arisaig shore, Antigonish co., N.S.

About 300 fossils from South mountain, Messenger brook, and the valley of the Torbrook, Annapolis co., N.S.

Fifty specimens of Ostracoderms, &c., from McArras brook, Antigonish co., N.S.

Several slabs and fragments of fossil plants from St. Andrews, N.B.

About 300 fossils from Silurian and Devonian rocks at St. Helen's island, near Montreal.

Pleistocene fossils from Peel St., Montreal.

About 150 Trenton fossils from the Montmorency and Ferrée rivers, Montmorency co., P.Q.

Numerous fossils from the Trenton, Utica and other formations near Ottawa.

About fifty fragments of pottery and bones from the right bank of the South Nation river, near Casselman, Ont.

Lambe, L. M. :—

A large collection of vertebrate remains from the Cypress hills, in south-western Assiniboia.

McInnes, W. :—

A large collection of land and fresh water-shells from Keewatin.

Wilson, W. J. :—

A few fossils from near the mouth of the Pagwachuan river, Kenogami river basin, Algoma district, Ont., and a few fresh,

water shells from Northern Ontario. Five clipped flints, from O'Sullivan lake, Thunder bay district, Ont.

Bailey, Prof. L. W. :—

Forty specimens of graptolites from the Cambro-Silurian slates at Tête à Gauche river, Gloucester co., N.B.

Two slabs of Carboniferous shale from Gunn's mine, Minto, Sunbury co., N.B.

Two slabs of shale, with obscure fossils, from Tapley's mills, Woodstock, N.B.

Two slabs of graptolitic shales, from Monument settlement, York co., N.B.

About twenty specimens of obscure fossils from Lower Birch island, S. W. Miramichi river, N.B.

Keele, Joseph :—

Specimens of fresh-water shells from small lakes in the valley of the Stewart river, Yukon territory.

Dowling, D. B. :—

About 100 fossils from the Devono-Carboniferous of the Rocky mountains in Canada.

Spreadborough, W. :—

Ninety skins of birds and seventy-two of small mammals, from the vicinity of Fernie and Elks, B.C. Specimens of marine, land, and fresh-water shells, from several localities in or near James bay.

The additions to the palæontological, zoological, archæological, and ethnological collections in the Museum during 1904,* and from other sources, are as follows.

By presentation :—

(*A.—Palæontology.*)

Springer, Hon. Frank, East Las Vegas, New Mexico :—

Slab of Niobrara chalk from Logan Co., Kansas, showing at least six fine and nearly perfect specimens of *Uintacrinus socialis*, Grinnell, on one of its weathered surfaces, and three separate specimens of that species, from the same formation and locality.

* In last year Summary Report, page 203, line 21 from the top, the additions to the Museum for 1903 are inadvertently incorrectly stated to be those "for 1902."

Harvey, Walter, Crofton, B.C. :—

Specimen of *Uintacrinus* from the Cretaceous shales on the north bank of the Cowichan river, below Menzies creek, Vancouver island ; and one from similar shales at Vesuvius bay, Salt Spring island. Specimen of *Hemiaster Vancouverensis*, from the Cretaceous shales at Shopland, V.I.

Wilson, Miss. M. E., Duncan's, V. I.:—

Type of *Hemiaster Vancouverensis*, W., from the north side of the Cowichan river, V.I., near the mouth of Menzies creek ; and two specimens of the same species, from the west slope of Mount Tzonhalem, V.I., from shale pits on the Maple Bay road.

Narraway, J. E., Ottawa :

Specimen of *Beatricea*, recently collected at Stony mountain, Manitoba, by E. J. Adams.

Fawcett, G. H., Ottawa :—

Specimen of *Corbicula occidentalis*, from the Little Bow river, near the mouth of Long Coulee.

Crawley, F. A., Wolfville, N.S. ; per Dr. Ami :—

A fossil from the iron ore beds of the Torbrook valley, Annapolis valley, N.S.

Leckie, Major J. E., Torbrook Mines, Annapolis, N.S. ; per Dr. Ami :—

Two slabs of fossiliferous iron ore (hematite) from the Torbrook mine.

Phinney, Capt. James, Middleton, Annapolis Co., N.S. ; per Dr. Ami :—

Specimen of ore from the bore-hole on the Fletcher Wheelock property (ninety-eight feet from the surface), South mountain, Annapolis co.

Grant, H. H., New Glasgow, Pictou co., N.S. ; per Dr. Ami :—

Specimen of core from the bore-hole on Rear brook, west bank of the East river of Pictou, near New Glasgow.

(B.—Zoology.)

Tyrrell, J. B., Dawson City, Y.T. .—

Male, female and lamb of *Ovis Dalli*, from the Yukon territory.

Latchford, Hon. F. R., Ottawa :—

Four fine specimens of *Arca incongrua*, Say, from Ste. Augustine, Florida.

Labarthe, J., Trail, B.C. :—

Set of nine eggs of the Cinnamon Teal ; nest of three eggs of the Black-winged Stilt ; both from Salt Lake county, Utah.

Stewart, Jas., Grande Prairie, B.C. :—

Numerous specimens of a small *Pisidium* from Grande Prairie.

Brodie, Dr. W., Toronto :—

Four specimens of *Vitrea cellaria* from Toronto, and three specimens of two species of *Sphœrium* from Midland, Ont.

Tufts, R. W., Wolfville, N.S. :—

Set of six eggs of the Purple Finch *(Carpodacus purpureus)* from Wolfville.

Walker, Miss Mary E., Buffalo, N.Y. :—

One specimen of *Vallonia pavula*, Sterki, and two specimens of *Pisidium Danielsi*, Sterki, from Oxley, Ont.

Weston, T. C., Quebec City :—

Specimen of *Hygromia rufescens* (an introduced British snail) from a garden in Quebec.

Young, Rev. C. J. Madoc, Ont. :—

Nest and set of seven eggs of the Golden-crowned Kinglet *(Regulus satrapa)* from North Frontenac.

Raine, Walter, Toronto :—

Photographs of the nest and eggs of the loon (1), American Merganser (1), Double-crested Cormorant (2), Herring Gull (1), and Black Tern (1), from Lake Winnepegosis ; and of the American robin (1), and Prairie horned Lark (1), from Kew Beach, Toronto.

Beaupre, Edwin, Kingston, Ont. :—

Two photographs of the nesting place of the Least Bittern, at Collins lake, Frontenac county, and one photograph of the nest and eggs of the Florida Gallinule, at the same lake ; also a photograph of the nesting place and eggs of a Black Duck in an old crow's nest in an elm tree on Wolfe island, near Kingston.

(G.—Archæology and Ethnology.)

His Excellency the Earl of Minto (per Dr. R. Bell) :—

A birch bark box.

Armstrong, R . E., St. Andrews, N.B. :—

Stone skin scraper, found a mile and a half above St. Andrews, in the valley of the St. Croix river.

By purchase :—

From D. H. Price, Aylmer, Ont. :—

"A large collection of Indian relics, mostly from the country on the north side of Lake Erie, which was inhabited by the Tobacco nation, at the advent of Europeans."—R. Bell.

From Walter Harvey, Crofton, V.I. :—

An unusually perfect specimen of a fossil crab, in a cretaceous nodule, picked up on the beach at Victoria, B.C.

From John Flann, jr., Manotick, Ont. :—

A fine adult female of the American White Pelican, shot at Manotick.

From R. W. Tufts, Wolfville, N.S. :—

Set of three eggs of the olive-sided flycatcher *(Cantapus borealis)* from Wolfville.

From F. Landsberg, Victoria, B. C. :—

Large cup-shaped sponge from the coast of British Columbia, near Bella Bella, brought up from a depth of 300 fathoms.

Vertebrate Palæontology,

By Mr. Lawrence M. Lambe.

(Vertebrate Palæontologist.)

Monograph issued.

The monograph on *Dryptosaurus incrassatus* referred to in the Summary Report for 1903 as being then more than half completed, was ready for the press in the early part of this year and has now been printed and issued. This monograph, based on the skulls and certain other parts of the skeletons of two individuals of one of the

largest known species of carnivorous dinosaur, forms part III of volume III (quarto) of Contributions to Canadian Palæontology and consists of twenty-seven pages of text illustrated by text figures and eight photogravure plates. The above dinosaurian remains are from the Edmonton series of the Cretaceous of the Red Deer river district in Alberta.

Other reports issued.

With a view to summarizing our knowledge to date of all fossil vertebrate species known from Canada, a paper was prepared during the first half of this year and presented in June last at the annual meeting of the Royal Society of Canada, for publication. This paper consists of four parts, (i) a summary of the progress of our knowledge of fossil vertebrate species since 1841, (ii) an enumeration of species according to their geological age, (iii) an enumeration of species arranged zoologically, and (iv) a bibliography of the more important references to these species. The lists are a convenient index to the study of vertebrate palæontology in Canada and will, it is hoped, prove of use to advanced students generally.

The results of a further study of the posterior crests of the Ceratopsia (horned dinosaurs) of the Belly river series, as exemplified by material from Red Deer river, Alberta, have been published in the form of illustrated papers entitled 'On the squamoso-parietal crest of two species of horned dinosaurs from the Cretaceous of Alberta', Ottawa Naturalist, vol. XVIII, and 'On the squamoso-parietal crest of the horned dinosaurs *Centrosaurus apertus* and *Monoclonius canadensis*', Transactions of the Royal Society of Canada, volume X. These reports were issued in July and December respectively; in the latter the new genus *Centrosaurus* is proposed.

Additional information regarding the structure and probable habits of the remarkable dinosaur *Ornithomimus altus* from the Belly river series of Red Deer river, Alberta, was published in the Ottawa Naturalist, vol. XVIII, in a paper on 'The grasping power of the manus of *Ornithomimus altus*, Lambe' (date of issue, May 10.)

Although part II of vol. III (quarto) of Contributions to Canadian Palæontology covers in a general way most of the remains of vertebrates obtained from the Belly river series of the North-west Territory, there is still much valuable material included in these collections that needs further study. As a single instance, from the Reptilia alone of this interesting fauna, some time has been given during the past year to the study of excellently preserved specimens of parts of the

head of the crocodile *Bottosaurus perrugosus*, Cope, as yet very imperfectly known. Much additional light is thrown on the structure of the head of this animal by the Belly river series fossils, on which an illustrated descriptive paper, partly completed, is now in hand.

Field work in Cypres hills.

The Oligocene beds of the Cypress hills, in Assiniboia, discovered during the summer of 1883 by Mr. R. G. McConnell, may be looked upon as probably the most promising collecting ground so far discovered for early Tertiary mammals in the west. Collections from this locality made by Messrs. McConnell and Weston were reported on by Professor E. D. Cope in 1891 in a paper entitled "The species from the Oligocene or Lower Miocene beds of the Cypress Hills," constituting the first part of vol. III (quarto) of Contributions to Canadian Palæontology. It being thought desirable to make further collections of fossil vertebrate remains from the Cypress hills, and acting under instructions, more than a month during the past summer was devoted to field work in this region.

Leaving Ottawa on 2nd July by the Canadian Pacific Railway, a start was made by waggon from Maple creek, Assiniboia. Mr. Justin S. De Lury, of Manilla, Ont., meeting me at North Bay, accompanied me as field assistant, and fulfilled the duties entrusted to him in a most creditable manner.

To reach the head waters of the north fork of Swift Current creek, where previous collections had been made and where the best palæontological results were expected, a course due south was taken as far as Hay lake, from which point Bone coulée, almost due east, was reached without difficulty. In Bone coulée, about nine miles west of the eastern escarpment of the Cypress hills, the head waters of the north fork of Swift Current creek and a creek flowing south (named Fairwell creek, by Mr. McConnell but known as Frenchman creek by the ranchmen in this district) flow within a few hundreds yards of each other in opposite directions, the former in a north-easterly direction, the latter at first almost due south, the sources of the creeks being in two neighbouring coulées tributary to Bone coulée on the west.

Oligocene deposits examined.

The exposures of the Oligocene deposits were examined along the eastern escarpment of the hills as well as on the southern slope in the vicinity of Frenchman (White Mud) river as far west as the mouth of the locally called Frenchman creek, also in the valley of this creek northward to Bone coulée and for some miles along the upper reaches of the north fork of Swift Current creek. Little success attended the examination of the eastern and southern escarpments. The greater

part of the collection was made in Bone coulée, with its numerous tributary coulées, and in its southern extension for a few miles along Frenchman creek. Here the grass-covered slopes are broken by numerous small and isolated weathered outcrops that at first do not appear very promising from a palæontological standpoint. A careful and close search, however, reveals an abundance of, for the most part, mammalian remains. Mammalian remains.

The most prolific beds are composed of a fine conglomerate that, on disintegration, has freed the enclosed fossils. Associated beds of coarse sand, of a rich brown colour, also yielded some very promising remains. Very few fossils were found in the coarser conglomerates, and none at all in the beds of loose pebbles.

The generally fragmentary and disassociated nature of the remains at this locality detracts much from their value as definite horizon markers. Many of the specimens clearly show that they had been broken and often worn prior to being deposited in the beds where they were found. Some excellently preserved jaws with continuous series of teeth were obtained, with many separate and well preserved teeth, but bones of the feet were in all cases disassociated.

The geology of the Cypress hills is discussed by Mr. McConnell in his report of 1885* where the newest deposits, capping the hills, are referred to as of Miocene age. Cope, in his memoir of 1891 on the Cypress hills collections of 1883-84, qualifies this to a certain extent and describes these beds as of Oligocene or Lower Miocene age. Matthew has assigned them to a more definite horizon at the bottom of the Oligocene, expressing the opinion that they are probably of approximately the same age as the Titanotherium beds at Pipestone springs, Montana. This opinion appears to be borne out by the list of species from Pipestone springs published by Dr. Matthew in 1903**, and the collections from the Cypress hills in the possession of this Survey. It is probable that the later Oreodon beds are represented wholly or in part. Whether the equivalent of the uppermost division of the Oligocene (Protoceras beds) is present has yet to be ascertained.

The collection of last summer is a large one and some time was spent in preparing it for a preliminary study that has occupied the closing months of the year.

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* Report on the Cypress hills, Wood mountain and adjacent country, &c. by R. G. McConnell. Part C. annual report, 1885. Geological and Natural History Survey of Canada.

** The fauna of the Titanotherium beds at Pipestone Springs, Montana. Bulletin American Museum of Natural History, vol. xix, article vi, 1903.

The specimens require careful study and comparison with types before anything but a tentative opinion, regarding the affinities of the forms included in the collection, can be given.

The following provisional faunal list is the result of a preliminary study of last summer's collection :—

PISCES.

Fishes. Actinopterygian fishes of at least two families viz : Amiidæ and Siluridæ. Represented by vertebræ, scales, and pectoral and dorsal fin spines.

REPTILIA.

CHELONIA.

Reptiles. A number of species indicated by parts of the shell. About five species are represented of which two can be readily identified with *Trionyx leucopotamicus*, Cope and the species from the Cypress hills doubtfully referred by Cope to *Stylemys nebrascensis*, Leidy.

SQUAMATA.

Lacertilian remains in the form of lower jaws with teeth, and dermal plates. Probably referable to Cope's species *Peltosaurus granulosus* from the White river beds of north-eastern Colorado.

Ophidian vertebræ, of probably one species.

CROCODILIA.

Represented by teeth, deeply pitted scutes, and vertebræ. Dr. F. B. Loomis has in the last number of the American Journal of Science (vol. xviii, No. 108, December 1904), in an interesting paper entitled "Two new river reptiles from the Titanothere beds," described a new species of crocodile (C. prenasalis) and a new species of Chrysemys (C. inornata) from South Dakota.

Cope in his report on the Cypress hills collection of 1883-4** describes two species of *Amia*, one species of *Rhœas*, two of *Amiurus*, one of *Trionyx* and refers to a previously known species of *Stylemys* (as above).

Lizards, snakes and crocodiles are now for the first time added to the Oligocene fauna of the Cypress hills.

**1891. On vertebrata from the Tertiary and Cretaceous rocks of the North-west Territory. "The species from the Oligocene or Lower Miocene beds of the Cypress hills," Geol. Surv. of Canada, Contr. to Can. Palæon, vol. iii (quarto) part I.

MAMMALIA.

UNGULATA.

ARTIODACTYLA.

Hyopotamus.

This genus is represented by an upper second molar tooth that may prove to belong to *H. brachyrhynchus*, O. and W., an Oligocene (White river) species described from South Dakota. The genus has not been hitherto recorded from the Canadian west. Mammals.

Elotherium.

Parts of lower jaws with molar teeth, collected last summer, are referred to *E. coarctatum*, Cope described originally from the Cypress hills in 1891, from an incomplete left mandibular ramus holding all the molar and premolar teeth. Two upper premolars, presumbly the third and fourth, and a posterior upper molar are tentatively referred to the same species.

Agriochœrus.

Oreodon.

Numerous teeth indicating a species of *Agriochœrus* possibly *A. antiquus*, Leidy and a species of *Oreodon (? O. culbertsonii*, Leidy). These forms have been known from the Western States but not from Canada.

Leptomeryx.

Hypertragulus.

Additional material is included in the collection of 1904 of Cope's Cypress hills species, *Leptomeryx esulcatus*, *L. mammifer*, *L. semicinctus* and *Hypertragulus transversus.* It is probable that the list of Tragulidæ will be augmented on further study of the material on hand.

PERISSODACTYLA.

Mesohippus.

An increased knowledge of the structure of the teeth of *Mesohippus westoni* is afforded by an unworn upper molar. The type specimens of this interesting and primitive form consist of an imperfect upper molar and two lower molars, the latter not free from injury, so that any information throwing light on the tooth structure is most acceptable.

Another species of *Mesohippus* approaching closely to *M. bairdi* (Leidy) in tooth pattern, but apparently specifically distinct, is indicated by well-preserved upper molars. This species is new to the Cypress hills fauna.

Hyracodon.

The maxillæ of an *Hyracodon* with the full premolar-molar series of teeth preserved was secured last summer. The specimen appears to be referable to a species distinct from *H. nebrascensis*, Leidy already known from the Oligocene of the Cypress hills.

Aceratherium.

Fragments of jaws probably belonging to the two species *A. mite*, Cope and *A. occidentale* (Leidy) already known from this locality.

Titanotherium.

An unusually perfect lower jaw of a Titanothere showing a complete set of teeth in the left ramus viz: three incisors, the canine, four premolars and three molars. In the right ramus are the three incisors, the canine and the second and third premolars. The alveolus of the first premolar is preserved. Nothing remains of the teeth behind the third premolar. The presence of three incisors is of interest and may be regarded as a primitive character.

RODENTIA.

Ischyromys.

A species, represented by a single tooth from the lower jaw (? p. 4), is referred for the present to *I. typus*, Leidy.

Steneofiber.

Part of a left mandibular ramus of small size holding the? second molar tooth is regarded as referable to a species of *Steneofiber* distinct from *S. nebrascensis*, Leidy. The alveolus of the third molar is preserved, as well as parts of those of the first and last molars. The antero-posterior diameter of the second molar is slightly over two mm.

A small molariform tooth of doubtful affinity is mentioned here as worthy of notice*. It is singular in exhibiting a large number of small lakes, about twenty, in the slightly worn surface of the crown.

Palæolagus.

Represented by separate teeth. A mandible from the Cypress hills has been already referred to *P. turgidus* by Cope, the author of the species. Matthew is of the opinion that *P. haydeni*, Leidy, and *P.*

* Since this paragraph was written Dr. W. D Matthew's genus *Entypomys* has been established (Notice of two new genera of mammals from the Oligocene of South Dakota, Bull. Am. Mus. of Nat. Hist., vol. xxi., article iii., Feb. 14, 1905). The Cypress Hills tooth is probably referable to this new genus.

turgidus are distinctive of the Oreodon beds and has recorded two species *P. temnodon*, Douglass, and *P. brachyodon*, Matthew, from the Titanotherium beds of Pipestone springs, Montana. It is possible that one or both of these last two species are represented in the collection of this year.

Of the rodents *Palæolagus* was the only genus known from the Cypress hills up to the present time.

CARNIVORA.

Creodonta.

Hemipsalodon grandis, Cope.

A separate lower canine of large size of this species ; imperfect above. Total length of specimen 112 mm ; length restored about 132 mm. (about $5\frac{2}{10}$ inches). Greatest antero-posterior diameter, slightly above mid-length, 42 mm. ; transverse diameter, slightly above mid-length, 30 mm.

The type specimens, consisting of a right mandibular ramus, was described by Cope from the Cypress hills, in 1891. In this specimen, the canine, broken off close to the edge of the alveolus, agrees in general size with the tooth discovered last summer. The robustness of the jaw and the size of the teeth demonstrate in a particularly forcible manner the great strength of this, the largest of the Creodonta.

Fissipedia (Carnivora Vera.)

Amphicyon.

Separate teeth representing apparently a number of forms belonging to the Canidæ. Part of a right maxilla, holding the fourth premolar and showing the alveoli of the third premolar and of the first, second and third molars, indicates a species of *Amphicyon.*

Dinictis..

This genus of the Felidæ is indicated by a few well-preserved teeth belonging to a species thought to be hitherto undescribed.

INSECTIVORA.

Mesodectes.

Separate upper molars of a species that is for the present referred to *Mesodectes* or *Ictops.*

The animals inhabiting our western country during Oligocene times are thus seen to have belonged to a variety of groups. That the number of individuals in some of the groups was large is evident from the abundance of the fossil remains of some forms. Some of the groups have since become extinct, others have undergone great changes and are with difficulty recognized in their descendants of the present day whilst a few now exist with but slight differences of form and structure.

The fishes belonged to the family of Amiidæ from which is descended the modern Bowfish or Mud-fish notably primitive in its structure, and the Siluridæ resembling the cat-fishes of to-day.

The reptiles included certain species of land and water tortoises, and river turtles, besides small lizards and snakes as well as crocodiles.

The greater proportion of the animals, however, were mammals some of which, such as the Titanotheres, approached the elephants in size.

Chalicotherium represents a distinct order and had a curious assemblage of characters amongst which were notably the possession of clawed feet, and teeth suggestive of the Perissodactyls. *C. bilobatum* described by Cope from the Cypress hills collection of 1883-4 has not been recognized as yet in the collection of last summer.

The Ungulata or herbivorous hoofed mammals were numerous and some of them evidently existed in large herds.

The Artiodactyls or even-toed Ungulates are well represented by their fossil remains. *Elotherium* was a pig-like animal of large size distantly related to the Pig and to the Hippopotamus. *Hyopotamus* was also an early ally of the true pigs (Suidæ) with teeth tending to approach the form of tooth characteristic of the higher Artiodactyls that chew the cud (ruminants). *Agriochœrus* and *Oreodon* belong to the family of Oreodontidæ, animals not larger than sheep, the typical members of which have been called by Leidy ruminating hogs. *Agriochœrus* closely resembled *Hyopotamus*. *Leptomeryx*, and allied genera, included animals of small size from which the deer of a later geological age are supposed to be descended. *Hypertragulus* is another form of extinct Traguloid.

Early horses, etc.

The Perissodactyls or odd-toed Ungulates consisted of early horses, primitive rhinoceroses, and titanotheres. The horses were represented by a form very similar to *Mesohippus bairdi* and a smaller species *M. westoni*. *M. bairdi* was of about the size of a peccary and had three toes. *Hyracodon* was a running type of rhinoceros with teeth nearly

resembling those of some of the early horses. *Aceratherium* included species of hornless rhinoceroses of small size and with light limbs. The Titanotheres were huge animals, with limbs shorter than those of an elephant, and bore a pair of horns set transversely in advance of the eyes.

Rodents.

The Rodents are represented by the following genera :—*Ischyromus* belonging to the Squirrel family, *Steneofiber* a small form of early beaver and *Palæolagus* antecedent to later hares and rabbits.

Flesh eaters.

The flesh-eating animals belonged to the Creodonta and to the true terrestrial carnivora of the families of Canidæ (Dogs) and Felidæ (Cats). The Creodonta constituted a primitive group of flesh eaters. *Hemipsalodon grandis* is the largest of this group and was an animal of powerful build. According to Cope its jaw was "more robust than that of any existing carnivore". *Amphicyon* is a genus belonging to the Canidæ. *Dinictis* included early forms of the cat tribe.

Insect eaters.

The Insectivores are revealed to us by the teeth of a small animal belonging to the genus *Mesodectes*. This order has not been previously known from our Oligocene rocks.

Twenty-five vertebrate species in all have hitherto constituted the Oligocene fauna of the Cypress hills ; with the increased knowledge gained from this year's collection this number is now raised to about forty.

It is proposed to fully describe the Oligocene fauna of the Cypress hills in a forthcoming illustrated memoir to form part IV of volume III (quarto) of Contributions to Canadian Palæontology.

Official correspondence connected with work in hand, and proof reading, whilst reports were being printed, have been attended to as in past years.

The Library.

By Dr. John Thorburn, Librarian.

During the past year, from January 2 to December 31, 1904, there were distributed 13,307 publications of the Geological Survey, comprising reports, special reports and maps. Of these, 8,235 were distributed in Canada ; the remainder, 5,072, in foreign countries, as exchanges to universities, scientific and literary institutions and to a number of individuals engaged in scientific pursuits.

The sale of reports and maps during the year amounted to $642.71. A large number of our earlier reports and maps are now out of print and can no longer be supplied.

There were received by the library, as donations or exchanges, 3,197 publications, including reports, transactions, proceedings, memoirs, periodicals, pamphlets and maps. The publications purchased during the year were 139. Forty-six scientific periodicals were subscribed for. The number of letters received in connection with the work in the library was 2,684, besides 3,137 acknowledgments from exchanges and individuals for publications sent to them. The number of letters sent from the library was 2,083, besides 798 acknowledgments for publications received. There are now in the library about 14,000 volumes, besides a large number of pamphlets. The number of volumes bound during the year was 126.

I have been greatly helped in my duties as librarian by my able assistant, Mrs. T. Alexander.

NOTE.—The books in the library are open for consultation during office hours, by persons wishing to obtain information in regard to scientific subjects.

MINES SECTION.

In regard to the operation of the mines section during 1905, Mr. E. D. Ingall reports as follows :

Owing to my absence on sick leave for four months, during the early part of the year, and subsequently for four months on geological field-work, the carrying on of the general work of the section devolved upon Mr. John McLeish assisted by Mrs. W. Sparks.

The preliminary summary of the mineral production of Canada for 1903 was issued February 23, 1903, and during the summer the preparation of the annual report for 1903, giving statistical and other details regarding the various mineral industries, was completed.

The collection of general data regarding the economic minerals of the country and their discovery and development; the answering of many inquiries along these lines, and all the other work of a similar nature devolving upon the section, have been carried on as well as the small staff and means of disposal would permit.

It is inevitable that in collecting technical data regarding our mineral deposits and industries, mostly by circulars and correspondence, the personal acquaintanceship with mining districts, &c., which is so necessary a pre-requisite to the accomplishment of good work, should need renewing from time to time, and field investigation will be needed next season in several directions. With so large a territory as that presented by the whole Dominion, and, so few of the mineral industries carried on in any well organized and regular way, it becomes quite a problem to keep in touch with them, so as to have always on hand reliable and detailed information to meet, without the expenditure of large sums of money annually, the constant public demand. In the United States the equivalent branch of their geological survey department absorbs amounts varying from $25,000 to $50,000 yearly.

The following pages present a summary of the progress, &c., of the various mineral industries during 1904, as completely and accurately as the data, so far available, will permit.

As usual it will be followed later by the annual report in which more complete and revised information will be given.

SUMMARY OF THE MINERAL PRODUCTION OF CANADA IN 1904.

(Subject to Revision.)

PRODUCT.		Quantity. (a)	Value. (a)
	METALLIC.		$
Copper (b)	Lbs.	42,970,594	5,510,119
Gold, Yukon	$10,337,000		
" All other	6,063,000		
		.....	16,400,000
Iron ore (exports)	Tons.	168,828	401,738
* Pig iron from Canadian ore	"	68,297	901,880
Lead (c)	Lbs.	38,000,000	1,637,420
Nickel (d)	"	10,547,883	4,219,153
Silver (e)	Oz.	3,718,668	2,127,859
Zinc (i)	Lbs.	477,568	24,356
Total metallic		.....	31,222,525
	NON-METALLIC.		
Arsenic (exports)	Tons.	73	6,900
Asbestus	"	35,635	1,167,238
Asbestic	"	13,011	13,006
Chromite	"	6,074	67,146
Coal	"	7,509,860	14,599,090
Coke (f)	"	543,557	1,884,219
Corundum	"	919	101,050
Feldspar	"	11,083	21,166
Graphite	"	452	11,760
Grindstones	"	4,509	42,782
Gypsum	"	340,761	372,924
Limestone for flux	"	200,646	176,973
Manganese ore (exports)	"	123	2,706
Mica	"	.....	152,170
Mineral pigments—			
Barytes	Tons.	1,382	3,702
Ochres	"	3,925	24,995
Mineral waters		.....	80,000
Moulding sand	Tons.	3,423	6,790
Natural gas (g)		.....	247,370
Petroleum (h)	Brls.	552,575	984,310
Phosphate	Tons.	917	4,590
Pyrites	"	33,039	94,797
Salt	"	68,777	318,628
Talc	"	840	1,875
Tripolite	"	320	6,400

* The total production of Pig iron in Canada in 1904 from Canadian and imported ores amounted to 303,454 tons valued at $3,582,001, of which it is estimated 68,297 ons valued at $901,880 should be attributed to Canadian ore and 235,157 tons valued at $2,680,121 to the ore imported.

Summary of the Mineral Production of Canada in 1904—*Concluded.*

Product.	Quantity. (a.)	Value. (a.)
Structural Materials and Clay Products.		$
* Cement, natural rock ..... Brls.	56,814	49,397
" Portland ..... "	850,358	1,197,992
Flagstone	.....	6,720
Granite	.....	100,000
Pottery	.....	200,000
Sands and gravels (exports) ..... Tons.	399,809	129,803
Sewer pipe	.....	378,894
Slate	.....	23,247
Terra-cotta, pressed brick, &c	.....	400,000
Tiles	.....	275,000
Building material, including bricks, building stone, lime, &c	.....	5,667,000
Total structural materials and clay products ..	.....	8,428,053
" all other non-metallic	.....	20,392,587
Total non-metallic	.....	28,820,640
" metallic	.....	31,222,525
Estimated value of mineral products not returned	.....	300,000
Total 1904	.....	60,343,165
1903 total	.....	62,600,434
1902 "	.....	63,885,999
1901 "	.....	66,339,158
1900 "	.....	64,618,268
1899 "	.....	49,584,027
1898 "	.....	38,697,021
1897 "	.....	28,661,430
1896 "	.....	22,584,513
1895 "	.....	20,648,964
1894 "	.....	19,931,158
1893 "	.....	20,035,082
1892 "	.....	16,623,417
1891 "	.....	18,976,616
1890 "	.....	16,763,353
1889 "	.....	14,013,113
1888 "	.....	12,518,894
1887 "	.....	11,321,331
1886 "	.....	10,221,255

(a.) Quantity or value of product marketed. The ton used is that of 2,000 lbs.
(b.) Copper contents of ore, matte, &c., at 12·823 cents per lb.
(c.) Lead contents of ores, &c., at 4·309 cents per lb.
(d.) Nickel contents of ore, matte, &c., at 40 cents per lb.
(e.) Silver contents of ore at 57·221 cents per oz.
(f.) Oven coke, all the production of Nova Scotia, British Columbia and the North-west Territories.
(g.) Gross return from sale of gas.
(h.) Includes crude oil sold to refiners, and oil sold for fuel and other purposes.
(i.) Zinc contents of ores at 5·1 cents per lb.
*For more complete figures see page 12.

REMARKS.

In the accompanying general table it is shown that the value of the mineral products of Canada during 1904, aggregated over $60,000,000. In comparing this record with that of previous years it must be borne in mind that complete figures are never available at this time of the year, so that in a number of items the data are necessarily partly estimated.

Allowing for this, there nevertheless remains a falling-off of about $2,250,000 in the grand total. This does not necessarily indicate a general slackening in the permanent mineral industries of the country, but rather a gradual return to natural conditions after a few years of abnormal inflation due to the rapid exploitation of the richer and easily accessible portions of the Yukon placers. To this cause can be attributed nearly $2,000,000 of the decrease shown.

Taking the following figures of the actual variation in the values of the metallic products, this feature will be quite apparent. The items given aggregate nearly 85 per cent of the whole production, and it will be seen that, if the Yukon gold yield be eliminated the decreases in some industries are practically offset by increases in others, bringing about practical equality.

Product.	Increase.	Decrease.
	$	$
Copper	.....	139,368
Gold, Yukon	.....	1,913,000
" B.C., N.S. and Ont	.....	530,590
Pig iron (from Canadian ore)	194,042	.....
Iron ore, exports	16,811	.....
Lead	868,858	.....
Nickel	.....	783,051
Silver	418,217	.....
Zinc	.....	24 244
Asbestus	250,487	.....
Coal	.....	496,333
Coke	149,815	.....
Petroleum	.....	64,664
Cement	47,400	.....
Total	1,945,630	3,951,250
Net decrease	.....	2,005,620

The special features of the leading mineral industries which, taken together, contribute close on 85 per cent of the grand aggregate for 1904, are to be found in the table given below.

Product.	Quantity.		Value.	
	Increase.	Decrease.	Increase.	Decrease.
	p. c.	p. c.	p. c.	p. c.
Metallic ;—				
Copper	·67			2·47
Gold				12·97
Pig iron (from Canadian ore only)	62·41		27·41	
Pig iron (from both home and imported ores)	1·87			4·29
Lead	109·49		113·05	
Nickel		15·65		15·65
Silver	16·26		24·46	
Non-metallic :—				
Asbestus and asbestic	16·72		26·94	
Coal		1·75		3·29
Coke		3·16	8·64	
Petroleum	13·55			6·16
Portland cement	35·46		4·12	

Taking the different classes, comparison with the totals for 1903 shows that the 'structural material' and 'clay products' class remained pratically stationary as far as their aggregate value is concerned, whilst the total for the metallic class show a decrease of $2,000,000, a feature which has already been explained.

1903.		1904.	
Product.	Per cent of total mineral production of Canada.	Product.	Per cent of total mineral production of Canada.
1 Gold	30·10	1 Coal and coke	27·32
2 Coal and coke	26·88	2 Gold	27·18
3 Building material	9·05	3 Building material	9·39
4 Copper	9·02	4 Copper	9·13
5 Nickel	7·99	5 Nickel	6·99
6 Silver	2·73	6 Silver	3·53
7 Cement	1·96	7 Lead	2·71
8 Petroleum	1·68	8 Cement	2·07
9 Asbestus	1·46	9 Asbestus	1·96
10 Lead	1·23	10 Petroleum	1·63
11 Pig iron (from Canadian ore)	1·13	11 Pig iron (from Canadian ore)	1·49

The foregoing table is intended to illustrate the relative values of the contributions to the grand total of the mineral output of Canada. The figures given account for all but 6·6 per cent of the whole. They omit all those contributing less than 1 per cent, although some of these, such as the mica and corundum industries, are otherwise interesting and important.

As formerly, the coal and coke output, when added to the value of the gold, constitute considerably more than half the mineral values produced, whilst, if the whole of the metal producing industries together with coal and coke be considered, a little less that ten per cent of the whole remains to be accounted for.

The *per capita* of the total mineral products for 1904 was about $10.40 as compared with $11.89, in 1903, and $2.23, in 1886, the first year for which figures are available.

Gold.—Practically every province in Canada shows a falling off in gold production, in 1904, as compared with 1903. Nova Scotia, which ordinarily has an output of about half a million dollars, shows a decrease of nearly half its production. Several reasons are given for this, among which may be mentioned (1) the extreme drought during the past season, (2) the closing down, owing to financial difficulties, of a number of the best producing mines, and (3) the cessation of production at the Richardson mine owing to the destruction of the shaft and workings by an extensive crush.

In Ontario, although a considerable amount of prospecting and development work has been done, most of the mines that were formerly important producers were not operated during the year.

In British Columbia an increased output from placer mines is indicated, while a smaller production was obtained from the lode mines. The ore shipments from Rossland and vicinity, the chief gold producing district, were less than in 1903 by about 20,000 tons.

The Yukon output for the year ($10,337,000) is based on the receipts of Canadian Yukon gold at the United States mint at San Francisco and other receiving offices.

Silver.—The bounty granted by the Dominion Government on the production of lead ores seems to have stimulated the operations of the silver-lead mines. The St. Eugene mine, in East Kootenay, was reopened, and its production probably accounts for the greater part of the increase.

Silver ·999 fine is now turned out at the refinery of the Canadian smelting works at Trail, B.C., as is also gold, ·994 fine. Refined silver has been shipped to New York, San Francisco and to China.

The average price per ounce of fine silver in New York during the year was 57·221 cents, as compared with 53·45 cents in 1903.

Lead.—Although over twice as much lead was produced in 1904 as in 1903, the output is still far from its former maximum, viz., 31,584 tons in 1900. The production in 1904 was about 19,000 tons, as compared with 9,070 tons in 1903. The exports of lead from Canada in 1904 were 12,913 tons of lead in ore, &c., and about 21 tons of pig lead. An electrolytic lead refinery is now in operation at the Canadian smelting works, Trail, B.C., producing pig lead, lead pipe, sheet lead, &c. It is said that lead corroding works are to be established in Montreal, by a Chicago firm, for the manufacture of white-lead and other pigments which will require a large amount of pig lead per annum.

Copper.—The copper contained in ore, matte, &c., shipped from Canadian mines in 1904 was about 21,485 tons, as compared with 21,342 tons in 1903.

In Ontario there was a falling off of over a thousand tons, which was more than made up by the increased production from the Boundary district and the Coast district of British Columbia. From Sudbury district, Ontario, 10,154 tons of matte were shipped, containing 2,455 tons of copper (see further under nickel). In British Columbia, shipments from the Boundary district were approximately 818,000 tons in 1904 and from Rossland 342,000 tons as compared with 697,284 tons from the Boundary district and 360,786 tons from Rossland in 1903.

The average price per pound of electrolytic copper in New York in 1904 was 12.823 cents as compared with 13.235 cents in 1903.

Cobalt, etc —The discovery of certain cobalt, nickel, arsenic and silver ores, which was made public in November 1903, promises to add, in the near future, largely to the production of these metals. The deposits were found during the building of the Timiskaming and Northern Ontario Railway, the roadbed running almost over the top of the first of the outcrops discovered. The ores are contained in a series of almost vertical veins varying in width from eight inches up to six feet, although the wider portions always contain rocky

matter. The veins intersect the conglomerate and slate, usually classified as Huronian. All of the deposits thus far discovered possess certain features in common. The minerals represented are chiefly smaltite, niccolite and native silver, with smaller quantities of erythrite dyscrasite, chloanthite and tetrahedrite. In some, the native silver is very abundant and a sample which was fairly representative of one of the smaller veins showed an assay value of $5,237.60 per ton. Analysis of the ore from one of the veins composed mainly of smaltite showed from 16 to 19 per cent of cobalt, 4 to 7 per cent of nickel, 60 to 66 per cent of arsenic, and 3 to 7 per cent of sulphur. The ores are thus so rich, that comparatively small veins could be worked at a hand some profit.

Although no returns have yet been received at this office it is stated that several car loads of ore, which realized very high values, have been shipped from this district.

Nickel.—The following were the results of operations on the nicke copper deposits of Ontario in 1904.

	Tons
Ore mined	203,388
Ore smelted	118,470
Matte produced	8,924
Matte shipped	10,154
Copper contents of matte shipped	2,455
Nickel contents in matte	5,274
Value of matte shipped	$2,193,198

According to customs returns exports of nickel in matte, etc. were as follows :

	Lbs.
To Great Britain	2,028,908
United States	9,204,961
Total	11,233,869

The price of refined nickel in New York remained steady throughout the year at from 40 to 47 cents per pound.

Zinc.—About 533 tons of zinc ore, worth $3,700, were shipped during the year from the Long Lake zinc mine in the County of Frontenac, Ont. No returns have been received of zinc production in British Columbia.

Iron.—Exports of iron ore were 168,828 tons, valued at $401,738. In addition to the ore exported, about 180,932 tons of ore, worth about $489,687, were mined in Canada and charged to Canadian blast furnaces.

Besides the above Canadian ore, 454,671 tons of imported ore, valued at $922,594, were used in Canadian furnaces. The total amount of pig iron manufactured from both Canadian and imported ores was 303,454 tons, of which 21,583 tons were made with charcoal as fuel, and 281,871 tons with coke. The quantity of charcoal used was 3,477,470 bushels and of coke 387,332 tons.

The pig iron was made by three firms in Nova Scotia, two in Quebec and four in Ontario.

Coal and Coke.—With the exception of a small decrease in shipments, coal production in Nova Scotia in 1904 shows but little change. A smaller amount of coke was made, owing to the smaller production of pig iron by the Dominion Iron and Steel Company. Efforts are being made to find new markets farther west in Ontario as well as to increase the exportation. In the North-west Territories many small mines have been opened, and the output shows a substantial growth. Coke is now being made in Alberta. On December 31, 1904, 56 beehive-ovens were in operation at Coleman, Alta., and 34 Belgian ovens, Bernard type, were in operation at Lille, Alta. In British Columbia the output of the Western Fuel Company, in Vancouver island, was considerably diminished, owing to the destruction by fire of the head-works at No. 1 mine. The Crow's Nest Pass Company, however, continued to increase its output, over 1,000,000 tons of coal being produced, of which more than half was used in making coke. The company has now 1,128 coke ovens completed.

Asbestus.—The production of asbestus, divided into crude and mill stock, was as follows :—

	Tons.	Value.
Crude	4,239	$ 509,001
Mill stock	31,396	658,277
Total	35,635	$1,167,278

Exports of asbestus according to Customs returns were :

37,272 tons valued at $1,160,887.

Natural Gas.—There was a somewhat increased production of natural gas in Ontario, due entirely to operations in the Welland field, production in the Essex field having dropped to very small amounts. The development of the gas field at Medicine Hat, Saskatchewan, seems to have been continued with such success. The gas commission of the town of Medicine Hat has now six producing wells, one of which has been put down to a depth of nearly a thousand feet,

yielding $1\frac{1}{8}$ million feet per twenty-four hours. The Canadian Pacific Railway Company has just completed drilling a well to a depth of 989 feet with $4\frac{5}{8}$ inch casing to 941 feet. The pressure per square inch developed in eighteen hours was 525 pounds.

Cement.—The production of natural rock cement, which has for a number of years been small in comparison with the output of Portland cement, shows another large decrease in 1904, the sales being only 56,814 barrels, valued at $49,397, as compared with 92,252 barrels valued at $74,655 in 1903. Although a much larger quantity of Portland cement was sold in 1904 the total value, owing to the fall in price is only slightly in excess of that in 1903. In the absence of complete returns, Portland cement statistics have been partially estimated. The following is, however, a close approximation :—

Portland cement sold	900,358 brls.	valued at $1,272,992
" manufactured	908,990 "	
Stock on hand January 1, 1904	124,919 "	
" December 31, 1904	133,551 "	

The imports of Portland cement in 1904 were :

Six months ending June	cwt.	829,872	$ 320,137
" " December	"	1,916,336	740,919
Total	"	2,746,208	$1,061,056

This is equivalent to about 784,630 barrels of 350 pounds each, at an average price per pound of $1.35. The duty is twelve and a half cents per hundred pounds.

Exports of Products of the Mine, Calendar Year 1904.

Product.		Quantity.	Value.
			$
Aluminium in bars, ingots, etc.	Lbs.	296,801	59,260
Arsenic	"	146,000	6,900
Asbestus	Tons.	37,272	1,160,887
Barytes	Cwt.	13,080	5,178
Chromite	Tons.	3,338	60,336
Coal	"	1,557,412	4,036,373
Feldspar	"	13,960	29,263
Gold bearing quartz, dust, nuggets, etc	$	.....	15,737,477
Gypsum, crude	Tons.	298,211	316,436
Copper, fine in ore, &c	Lbs.	38,548,473	4,215,596
" black or coarse, cement-copper and copper in pigs	"	4,809	618
Nickel in ore, matte, &c	"	11,233,869	1,091,349
Lead in ore, &c	"	25,826,413	558,464
" pig, &c	"	42,410	997

Exports of Products of the Mine, Calendar Year 1904.—*Con.*

Product.		Quantity.	Value.
			$
Platinum in ore, concentrates, &c	Oz.	.....	140
Silver in ore, &c	"	3,371,013	1,904,394
Mica	Lbs.	795,843	198,482
Mineral pigments	"	832,570	7,260
" waters	Gals.	6,615	2,917
Oil—			
crude	"	4,207	213
refined	"	2,126	470
Ores—			
Antimony	Tons.	160	7,237
Iron	"	168,828	401,738
Manganese	"	123	2,706
Other	"	8,579	222,117
Phosphate	"	191	5,348
Plumbago, crude	Cwt.	3,542	9,609
Pyrites	Tons.	18,279	49,911
Salt	Lbs.	1,006,036	4,186
Sand and gravel	Tons.	399,809	129,803
Stone, ornamental	"	162	1,082
" building	"	70,639	16,720
" for manufacture of grindstones	"	887	8,717
Other products of the mine		.....	18,523
Manufactures—			
Bricks	M.	696	5,357
Cement	$	.....	5,494
Coke	Tons.	102,463	345,031
Clay	$	.....	2,722
Grindstones, mfd	"	.....	26,895
Gypsum, ground	"	.....	2,333
Iron and steel—			
Stoves	No.	1,366	17,642
Castings	$	.....	61,624
Pig iron	Tons.	21,016	200,363
Machinery, N.E.S	$	.....	356,868
Scrap iron or steel	Cwt.	157,182	76,125
Hardware, N.E.S	$	.....	120,070
Steel and mfgs. of	"	.....	332,932
Sewing machines	No.	1,073	22,663
Typewriters	"	4,240	130,115
Lime	$	.....	73,838
Metals, N.O.P	"	.....	478,435
Plumbago, mfg. of	"	.....	6,958
Stone, ornamental	"	.....	4,722
" building	"	.....	38

VISITORS TO THE MUSEUM.

The number of visitors who signed the museum register during the year 1904 was 32,844 being 5,007 more than in 1903.

STAFF, APPROPRIATION, EXPENDITURE AND CORRESPONDENCE.

The staff at present employed numbers 63.

During the year the following changes took place in the permanent staff :—

Mr. James A. McGee died.

Mr. Charles Camsell was appointed to the technical staff.

Messrs. O. E. Prud'homme, J. A. Robert and J. S. H. Lefebvre were appointed as draughtsmen in the topographical branch.

Mr. John J. McGee was appointed as a Junior Second Class clerk, vice Mr. James A. McGee, deceased.

The funds available for the work and expenditure of the Department during the fiscal year ending 30th June, 1904, were :—

Details.		Grant.	Expenditure.
		$ cts.	$ cts.
Civil-list appropriation		58,116 66	
General appropriation		75,005 00	
Civil-list salaries			52,952 14
Explorations and Surveys			16,719 21
Wages of temporary employees			23,553 00
Printing, engraving and lithographing			18,696 32
Books and instruments			1,585 88
Chemicals and apparatus			496 55
Specimens for Museum			65 20
Stationery, mapping material, &c.			1,669 17
Incidental and other expenses			2,899 09
Advances to explorers			19,202 50
			137,839 06
Deduct.—Advanced in 1902–03 on account of 1903–04	$10,545 00		
Less—unexpended and credited Casual Revenue	90 55		
			10,454 45
			127,384 61
Unexpended balance Civil-list appropriation			5,164 52
" " General "			572 53
		133,121 66	133,121 66

The correspondence of the Department shows a total of 12,864 letters sent, and 13,762 received.

I have the honour to be, Sir,
Your obedient servant,

ROBERT BELL,
Acting Deputy Head and Director.

Ottawa, May 1905.

APPENDIX I.

ASSAYS, BY M. F. CONNOR, OF ORES REFERRED TO IN MR. INGALL'S REPORT.

—		Copper.	Silver. (Oz. to ton)	Gold. (Oz. to ton)	Platinum.	Remarks.
		%				
C. P. Smith property..	(1)	0·25	0·05	Traces.	Nil.	(1) Pit in west end of property.
Lot 2, Con. III.....	(2)	Nil.	Nil.	Nil.	Nil.	(2) Stripping at east end of property.
Johnson Tp., Algoma.	(3)	2·18	0·14	Traces.	Nil.	(3) Stripping at east end of property.
Rock lake mine, Algoma..		8·15	0·26	.....	Nil.	Ore dump.
Bruce mines, Algoma.....		5·89	Trace.	.....	Nil.	
Cameron mines, Algoma...		3·15	0·05	Average gold value, 15 cts. per ton.	Nil.	Quartz ores containing copper pyrites.
Hinks mining location, Johnson Tp., Algoma....		5·88	0·08	.....	Nil.	
South Echo Bay mine, Algoma		4·52	0·16	....	Nil.	
King Edward mine, N. of Bruce mines.....		4·62	0·16	....	Nil.	

MAY 25th, 1905.

In view of the rumoured results of assays of ores in the district showing considerable quantities of platinum and of the precious metals, the above set of specimens, collected by Messrs. Ingall and Denis, were examined in the laboratory of the Survey. Unfortunately, no ore concentrations, from which more characteristic results might have been obtained, were available, but the extent of the mineralization of the hand specimens utilized can be judged from the copper contents, if it be surmised, as is most probable, that the precious metals would be associated with the chalcopyrite. In this set of guide assays, it will be noted that platinum is altogether absent, whilst the quantity of gold is insignificant, and silver is present in only unimportant quantities.

APPENDIX II.

Notes on a collection of organic remains from the ferruginous and friable shales of Messenger Brook, Torbrook, near county-line, between Kings and Annapolis, south of Kingston, in King's county, Nova Scotia, collected Nov. 24th, 1902, by Hugh Fletcher, determined by H. M. Ami Assistant Palæontologist.

In November, 1902, Mr. Hugh Fletcher, of the Geological Survey staff, forwarded to Dr. J. F. Whiteaves a small collection of fossil organic remains from the more or less altered, rusty shales of Messenger

Brook, Annapolis county, Nova Scotia, with a view of ascertaining the precise geological horizon to which the strata, from which the specimens were derived, belonged. "*Dictyonema sociale (var. Websteri)*" was reported to have been found in the same beds with the fossils sent for determination.

This collection was placed in my hands by Dr. Whiteaves and a request was made by Mr. Fletcher for a list of the species which it contained, together with the determination of the horizon indicated by the entombed fuuna. I desire to submit the following notes made in a preliminary examination of the obscure forms in the collection.

LIST OF SPECIES.

Echinodermata.

1—Obscure and imperfectly preserved fragments of crinoid stems, too imperfect for identification.

Bryzoa.

2 3—Several species of monticuliporoids, mostly branching forms, which require microscopical sections before they can be identified. Better material required.

4—*Fenestella*, sp. A few fragments of a specimen of *Fenestella* are clearly discernable in the collection. Between four and five fenestrules or openings between the rows or cells occur in the space of five millimetres. Probably a new species.

Brachiopoda.

5—*Orthis*-like shell, too crushed to be recognized; possibly a *Rhipidomella.*

6—*Strophomena*, sp., indt.

7—*Spirifer* sp., several imperfect casts of a species of this genus, too imperfectly preserved to be identified.

Pelecypoda.

8—*Pterinea*, sp. indt. two specimens occur in the collection which can be referred to this genus. They are incomplete and imperfectly preserved, but they exhibit strong radiating and concentric lines which give to the shell a decided cancellate appearance and structure. Appears to belong to the same section as *Pterinea textilis*, var. *arenaria*, or a closely related species.

Gasteropoda.

9—An obscure fragment of a gasteropod whose affinities appear to place it near to *Platyostoma*, too imperfect for identification.

Crustacea. (Trilobita and Merostomata.)

10—An imperfectly preserved portion of the pygidium which appears to indicate the presence of a Phacops or a *Homalonotus.*

11. *Pterygotus ?* Two crushed and flattened sac-like bodies which appear on one side of a slab of rock from the Messenger Brook when examined under a lens exhibit crustacean-like structure whose affinities appear to place them near to the above genus. Close to these sac-like bodies are a large number of more or less regularly disposed, rounded, or at times hexagonal structures, spread out on the face of the slab which resemble the ova of *Pterygotus* such as have been figured by Dr. Henry Woodward in the Palæontographical Society's Memoir on the "British Fossil Merostomata," plate XVI, fig. 10.

The finely pitted, and crustacean, or horny-like character, of the test of the sac-like bodies leads me to conclude, in the absence of further collections and study, that they are probably examples of the sacs in which were enclosed the ova of a species allied to Pterygotus.

The horizon indicated by the species and genera represented in this small collection appears to me to be somewhere in the neighbourhood of the base of the Devonian or the summit of the Silurian system. The forms are practically all marine in character, and I have not been able to detect any form in common between Messenger Brook fossils and those from the Torbrook sandstones obtained by Dr. W. L. Bailey in the same county some years ago. It would, however, be interesting to know the relation of the two series to each other in the succession of the geological formation of South-western Nova Scotia. The sedimentation, as developed in the south-western part of Nova Scotia, appears to be very similar to that of south-western England. From a comparative study recently made by the writer, he was able to correlate a number of geological formations in common on both sides of the Atlantic, both in the Silurian and Devonian systems, affording additional evidence of the striking parallelism which exists between the different members of the series, both as to their origin and condition of deposition.

Iron ores occur associated with these fossiliferous strata, and the precise geological horizon of both the sandstones and the shales will be determined when the collections made in 1904, and those which it is hoped will follow in 1905, have been examined and reported upon. The Torbrook sandstones are definitely of Eo-Devonian age ; and it is not at all unlikely that the shales of the Messenger Brook are higher in the series.

N.B.—Additional material is required from this locality—H. M. A.

APPENDIX III.

Description of a species of Bythotrephis from the dark-gray calcareous and indurated slates collected by Mr. J. D. Tyrrell from a locality along the Unihani river, seven miles north of Dalton's Post, Yukon district, Canada. (By H. M. Ami, of the Geological Survey of Canada.)

BYTHOTREPHIS, Hall, 1847.

BYTHOTREPHIS, YUKONESIS, N. Sp.

Description—This species is represented by a number of smooth, slender shining, flattened and somewhat flexuous stems or branches of an Alga which divide into a number of branchlets given off at various angles, ranging from an acute angle of from 15° to 20° to an angle of 75° in the direction of the apex or extremity of the branch or stem.

The largest specimen in the collection—itself a fragment—measures *three* centimetres in length, and one millimetre in breadth, giving off three branches in the space of eight millimetres.

A smaller specimen, giving off a branch about five millimetres from its distal extremity, measures one centimetre in length and is one millimetre across also, as in the largest specimen, the angle formed by the branch and the stem proper being between seventy-five and eighty degrees (75° to 80°). The extreme tips of the branches in this specimen are abruptly pointed.

The twelve specimens in the collection are preserved in a matrix of dark-gray indurated calcareous rock, as black shining stems on the divisional planes of stratification. The roof is traversed by numerous veinlets of calcite running at various angles to one another and to the stratification, but usually at right angles to the latter or nearly so.

Locality and Horizon.—Seven miles north of Dalton's Post, Unihani river, Yukon district, Canada. Collected by Mr. J. B. Tyrrell, June 27th. Lower Palæozoic, not unlike forms from Lower Ordovician Stationary Cambrian formations in other parts of the world.

APPENDIX IV.

Determinations of fossil plants from various localities in British Columbia and the North-west Territories, by Professor D. P. Penhallow, of McGill University, Montreal, with notes on the geological horizons indicated, by H. M. Ami, Assistant-Palæontologist, Geological Survey of Canada.

Since the demise of Sir William Dawson, of McGill University, to whom most of the fossil plant remains discovered by various geologists in the different provinces and territories of the Dominion were wont to be sent for determination and study by the officers of this Department, this work has fallen upon the shoulders of Professor Penhallow of McGill University, who succeeded Sir William Dawson in the Chair of Botany in that Institution.

Five collections of fossil plants were recently forwarded from the collections of the Geological Survey Museum to Prof. Penhallow, who, at Dr. Bell's request, kindly undertook to determine the species represented. They include the following :—

A.—Leaves, stems of plants, seeds, fragments of cones &c., from the brown shales of the Diamond Vale Coal Company's property at Quilchenda, British Columbia, collected by Dr. R. W. Ells and R. A. A. Johnston, 1904.

B.—Leaves, fragments of branches, from the gray shales of Coal Gully, near Coutlee, British Columbia. These gray shales are some 400 feet below the horizon of the brown shales holding the abundant flora at Quilchenna, B.C.

C.—From the Valley of the Red Deer river, at the Mouth of the Blind Man river, on Berry creek, and five miles below Matjiwin creek, North-west Territories. Collected by Mr. L. M. Lambe, 1897.

D.—Remains of cycads, from the coal-bearing strata of the Crows Nest coal-fields, Michel station, C.P.R., British Columbia. Collected by J. McEVoy, 1900.

E.—Specimens collected by Mr. J. B. Tyrrell, Mining Engineer in Dawson City, Yukon territory, from the Nordenskiold river, N.W.T.

A.

Plants from the Diamond Vale Company's property, Quilchenda, B.C. :—

Taxodium distichum miocenum, Heer.

Taxodium occidentale, Newb.
Thuya interrupta, Newb.
Ginkgo digitata, (Brongn.) Heer.
Sequoia Nordenskioldii, Heer.
Fragments of exogenous stems associated with leaves of *Taxodium distichum.*
Taxodium distichum, in part.
Fruit of *Betula heterodonta ?* Newb. in part.
Pinus trunculus ? Dawson.
Alnites curta, Dawson. Cones.
Populus obtrita, Dawson.
Carpinus grandis, Unger.
Sassafras cretaceum, n. sp.
Uimus speciosa, Newb-
Quercus castanopsis, Newb,
Cornus Newberryi, Hollick.
Carya antiquorum, Newb.
Betula angustifolia, Newb.
Populus polymorpha, Newb.
Populus polymorpha, Newb.
Thuya interupta, Newb.
Pinus trunculus? Dawson.
Alnites curta, Dawson. Fragment of cone.
Rhamnus ? sp.
Salix orbicularis, n. sp.
Grass seeds.
Picea Quilchensis, n. sp.
Rhamus serrata, n. sp.
Magnolia sp.

HORIZON INDICATED.

The age of these brown shales, overlying the coal-bearing strata of Quilchenna basin in the Nicola district of British Columbia, from the flora determined by Professor Penhallow, would lead me to infer that it is referable to the Miocene Tertiary. *Populus obtrita*, *Alnites curta*, *Carpinus grandis* as well as *Pinus trunculus* were recorded by Sir William Dawson from the brown and very similar shales of the Similkameen valley in his paper on the fossil plants of the latter locality in the Transactions of the Royal Society of Canada for 1890.

I have elsewhere (Trans. Roy. Soc. Can., 2nd Series, Vol. IV, Sect. 4, 1901–1902, p. 220) designated the strata holding the fossil plants described by Sir William Dawson, and the fossil insects by Dr. S. H.

Scudder, as the "Similkameen formation," and to this formation I would also refer the brown plant-bearing shales of the Quilchena coal basin, in the Nicola district of British Columbia. (See p. 42.)

B.

The following specimens are from Coal Gully, near Coutlee, British Columbia, and were collected by Dr. R. W. Ells, and R. A. A. Johnston, 1904.

Taxodium distichum miocenum, Heer.
Ficus sp.
Ulmus sp.
Taxodium distichum.

HORIZON INDICATED.

Notwithstanding the fact, as stated by Dr. Ells, that these gray shales are some 400 feet below the horizon of the brown shales of the Similkameen formation in the Quilchena coal basin, they are never. theless referable to the Miocene Tertiary. These gray strata, associated as they are with the coal of the area in question, have as yet furnished but a few specimen of fossil plants. On further examination, they may be obtained from these strata, and may throw new light upon the precise geological horizon to which they are to be referred. Until such collections are available, it appears to be quite safe to refer these gray shales to the lower portion or division of the Similkameen formation.

C.

Red Deer river valley, mouth of the Blind Man river, North-west Territories, collected by Mr. L. M. Lambe, during his explorations in vertebrate palæontology.

Populus obtrita, Dawson.
Taxodium occidentale, Newb.
Sequoia Couttsiae, Heer.
Carya antiquorum, Newb.
Carya antiquorum, Newb.
Taxodium distichum miocenum, Heer.
Sphenopteris Blomstrandi, Heer.
Viburnum ovatum, Penhallow.
Sphenozamites oblanceolatus, n. p.
Osmundites macrophyllus, n. sp.
Populus cuneata, Newb.
Sequoia Couttsiæ?

Corylus Macquarrii?
Clintonia oblongifolia, Penhallow.

HORIZON INDICATED.

The sandstones and associated strata from which these plant-remains were derived on the Red Deer river, at the mouth of the Blind Man river, are referable to the Laramie, and particularly to the upper portion, which is of Tertiary age. This upper series in the Laramie, Mr. Tyrrell has designated as the Paskapoo formation. To this formation the above species of plants obtained by Mr. Lambe and determined by Prof. Penhallow, are referred except *Populus cuneata* and *Sequoia Couttsiæ*, which belong the Belly River series or formation in the Upper Cretaceous. These twa plant-remains came from (a) five miles below the mouth of Matjiwin creek, and (b) Berry creek respectively.

D.

Fossil plants from the coal-bearing stata of the Crows Nest coal basin, Michel station, C.P.R., British Columbia, collected by W. W. Leach, of the Geological Survey of Canada.

Podozamites lanceolatus, Lindl.
Thyrsopteris sp.—approaching very closely to *T maakiana*, Heer.
Cladophlebis constricta? Newb.

HORIZON INDICATED.

The age of the Crows Nest coal-bearing strata have been ascribed by Sir William Dawson to the Kootanie series which is generally held to be of Jurasso-Cretaceous age.

E.

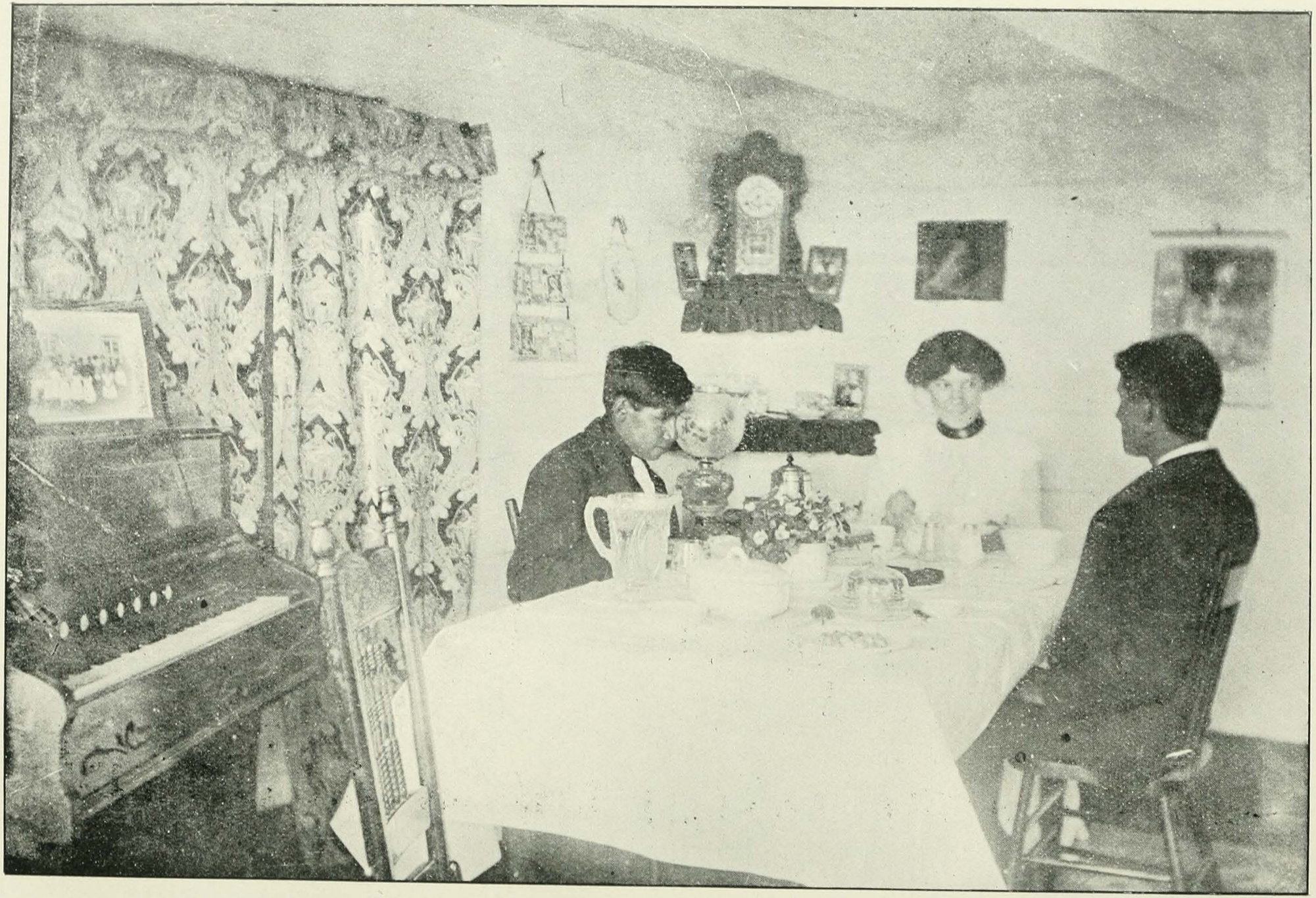
Nordenskiold river, North-west territories, collected by Mr. J. B. Tyrrell.

Cladophledis sphenopteroides, Font.
Cladophlebis rotundata, Font.
Cladophlebis? sp.
Fragments from stipe of fern fronds, and *Carpolithes.*
Various fragments from stipes and rachises of ferns.

HORIZON INDICATED.

The specimens from this horizon appear to indicate a Cretaceous flora not far removed from that of the Kootanie series of Sir William Dawson.

The Geological Survey of Canada is under special obligations to Professor Penhallow for his willingness to undertake the determination of these various collections.



INTERIOR OF BEN STONE CHILD'S HOUSE, EX-PUPIL OF FILE HILLS BOARDING SCHOOL.

DOMINION OF CANADA

ANNUAL REPORT

OF THE

DEPARTMENT OF INDIAN AFFAIRS

FOR THE

YEAR ENDED JUNE 30

1904

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1905

[No. 27—1905.]

To His Excellency the Right Honourable Sir Albert Henry George, Earl Grey, Viscount Howick, Baron Grey of Howick, in the County of Northumberland, in the Peerage of the United Kingdom, and a Baronet; Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, &c., &c., Governor General of Canada.

MAY IT PLEASE YOUR EXCELLENCY :—

The undersigned has the honour to present to Your Excellency the Annual Report of the Department of Indian Affairs for the fiscal year ended June 30, 1904.

Respectfully submitted,

CLIFFORD SIFTON,
Superintendent General of Indian Affairs.

OTTAWA, December 31, 1904.

TABLE OF CONTENTS

PART I.

	PAGE.
General Index	vii
Report of Deputy Superintendent General of Indian Affairs	xvii
Report of Indian Commissioner for Manitoba and Northwest Territories.	201
" " Superintendent for British Columbia	289
" " Agents and other Outside Officers	1-300
" Principals of Boarding and Industrial Schools	301

PART II.

Tabular Statements :—

Receipts and Expenditure of Boarding and Industrial Schools	3-35
School Statement	36-57
Indian Land Statement	58-60
Census Return	61-84
Agricultural and Industrial Statistics	85-149
Commutations of Annuity	150
Officers and Employees	151-166
Appropriation Accounts	167-8
Indian Trust Fund Accounts	169

GENERAL INDEX

A.

Abenakis of St. Francis, Que., Agriculture,
Ahousaht Boarding School, B. C.,
Ahtahkakoop's Band, Carlton Agency, N.W.T.,
Alberni Boarding School, B.C.,
Alert Bay Girls' Home, B.C.,
" Industrial School, B.C.,
Alexander's Band, Edmonton Agency, N.W.T.,
All Hallows Boarding School, Yale, B.C.,
Algonquins of Golden Lake, Ont.,
" River Desert, Que.,
" Timiskaming, Que.,
Alnwick Band, Ont.,
Amalecites of Cacouna, Que.,
" Viger, Que.,
Annapolis County, N.S., Micmacs,
Annuity Commutations,
Antigonish County, N.S., Micmacs,
Appropriation Accounts,
Arsenault, J. O.,
Ashdown, R. L.,
Ashton, Rev. R.,
Aspdin, Thos. W.,
Assabaska Band, Man.,
Assiniboine Agency, N.W.T.,
" Band, N.W.T.,
Aylsworth, Wm. R.,

A. O. Comire, M.D.. 41
See 'Agricultural and Industrial Statistics,' Part II, pages 85-149; also side headings in each report: 'Agriculture,' 'Buildings,' 'Crops,' 'Farming,' 'Farm Implements,' and 'Stock'.. .. ..
J. C. Butchart, B.A.. 390
J. H. Price.. 145
Jas. R. Motion.. 391
A. W. Corker.. 394
A. W. Corker.. 403
Jas. Gibbons.. 155
Sister Superior Amy.. 401
Martin Mullin.. 8
W. J. McCaffrey.. 43
A. Burwash.. 58
J. Thackeray.. 16
Edouard Beaulieu.. 44
Same as 'Amalecites of Cacouna'.. 44
John Lacy.. 67
See 'Commutations of Annuity,' Part II p. 150.. .. ..
John R. McDonald.. 68
See 'Return B,' Part II, pp. 167-8.. .. ..
Prince Edward Island Superintendency.. 79
Qu'Appelle Agency, N.W.T.. 172
Mohawk Institute, Brantford, Ont.. 304
Assiniboine Agency.. 125
R. S. McKenzie.. 98
Thos. W. Aspin.. 125
Thos. W. Aspdin.. 125
Mohawks of the Bay of Quinté, Ont.. .. 20

B.

Babine and Upper Skeena River Agency, B.C.,
Balter, Leon,
Bastien, Antoine O.,
Batchawana Band, Ont.,
Battleford Agency, N.W.T.,
" Industrial School,
" Inspectorate—Agencies,
" Inspectorate—Schools,
Bathurst Band, N.B.,
Bay of Quinté, Ont., Mohawks,
Beardy's Band, Duck Lake Agency, N.W.T.,
Beaulieu, Edouard,
Beaver Lake Band, Saddle Lake Agency, N.W.T.,
Beckwith, Chas. E.,
Bell, Ewen,
Bersimis Agency, Que.,
" Band,
Big Cove Band, N.B.,
Big Island Band, Man.,
Birdtail Sioux Band, Birtle Agency, Man.,
Birtle Agency, Man.,
" Boarding School,
Bishop Christie (Clayoquot) Industrial School, B.C.,
Blackfoot Agency, N.W.T.,
" Boarding Schools,
Blain, Jean,
Blood Agency, N.W.T.,
" C.E. Boarding School,
" R.C. Boarding School,
Blue Quill's Boarding School, Alta.,
Boening, Rev. H.,
Bonin, L. U.,
Brandon Industrial School, Man.,
British Columbia,

R. E. Loring.... 209
Blue Quill's Boarding School, N.W.T... 332
Hurons of Lorette, Que.. 44
Wm. L. Nichols.. 24
J. P. G. Day.. 127
Rev. E. Matheson.. 372
W. J. Chisholm.. 186
W. J. Chisholm.. 431
Wm. D. Carter.. 59
Wm. R. Aylsworth.. 20
J. Macarthur.. 151
Amalecites of Viger, Que.. 44
G. G. Mann.. 180
Micmacs of King's County, N.S... 74
Williams Lake Agency, B.C.. 278
A. Gagnon.. 54
A. Gagnon.. 54
Wm. D. Carter... 61
R. S. McKenzie.. 97
G. H. Wheatley.. 134
G. H. Wheatley.. 133
E. H. Crawford.. 327

Rev. P. Maurus.. 405
J. A. Markle.. 138
H. W. Gibbon Stocken.. 328
Iroquois of Caughnawaga.. 46
J. W. Jowett.. 141
Gervase Edward Gale.. 330
Rev. J. L. LeVern, O.M.I.. 331
Leon Balter.. 332
Williams Lake Industrial School, B.C.. 422
Ojibbewas of Lake Superior, Western Div. 26
Rev. T. Ferrier.. 319
Superintendent Vowell.. 289

B—*Concluded.*

Buctouche Band, N.B.,	Wm. D. Carter.. 62
Buffalo Bay Band, Man.,	R. S. McKenzie.. 97
Burnet, Peter, D.L.S.,	Survey Report, B.C.. 297
Burnt Church Band, N.B.,	Wm. D. Carter.. 60
Burwash, Adam,	Timiskaming Agency, Que.. 58
Butchart, J. C., B.A.,	Ahousaht Boarding School, B.C.. 390

C.

Cacouna, Que., Amalecites,	*Same as* 'Amalecites of Viger'.. 44
Cahill, Rev. C., O.M.I.,	Rat Portage Boarding School, Ont.. 318
Calgary Industrial School, N.W.T.,	Rev. Geo. H. Hogbin.. 374
Cameron, Rev. A.,	Eskasoni Agency, N.S... 68
Cameron, E. D.,	Six Nation Indians, Ont.. 34
Cape Breton County, N.S., Micmacs,	Rev. A. Cameron, Rev. D. M. MacAdam.. 68-78
Cape Croker, Ont., Chippewas,	John McIver.. 3
Carlton Agency, N.W.T.,	J. H. Price.. 144
Carion, Rev. A. M., O.M.I.,	Kamloops Industrial School, B.C.. 411
Carruthers, H. A.,	Pelly Agency, N.W.T.. 169
Carter, Wm. D.,	Northeastern Division of New Brunswick. 59
Cattle,	*See* 'Agricultural and Industrial Statistics,' Part II, pages 85-149; also side heading 'Stock' in each report.. .. ..
Caughnawaga, Que., Iroquois,	J. Blain.. 46
Cecilia Jeffrey Boarding School, Ont.,	Austin G. McKitrick.. 312
Census,	*See* 'Census Return,' Part II, pages 61-84
Chaumont, Rev. W.,	Pine Creek Boarding School, Man.. 316
Charlebois, Rev. O., O.M.I.,	Duck Lake Boarding School, Sask.. .. 338
Chipewyan Band, Onion Lake Agency, N.W.T.,	W. Sibbald.. 166
" Saddle Lake Agency, N.W.T.,	G. G. Mann.. 180
Chippewas of Cape Croker, Ont.,	*Same as* 'Chippewas of Nawash'.. 3
" Christian Island, Ont.,	Chas. McGibbon.. 1
" Georgina and Snake Islands, Ont.,	John Yates.. 2
" Nawash or Cape Croker, Ont.,	John McIver.. 3
" Rama, Ont.,	D. J. McPhee.. 4
" Sarnia, Ont.,	A. English.. 5
" Saugeen, Ont.,	John Scoffield.. 33
" Thames, Ont.,	S. Sutherland.. 6
" Walpole Island, Ont.,	J. B. McDougall.. 40
Chisholm, W. J.,	Battleford Inspectorate,N.W.T.—Agencies 186
"	Battleford Inspectorate, N.W.T.—Schools 431
Christian Island Band, Ont.,	Chas. McGibbon.. 1
Church of England Mission, Ont.,	L. U. Bonin.. 28
Clandeboye Agency, Man.,	Rev. John Semmens.. 80
Clayoquot Industrial School, B.C.,	Rev. P. Maurus.. 405
Christian Island Band, Ont.,	Chas. McGibbon.. 1
Coccola, Rev. N.,	Kootenay Industrial School, B.C.. 414
Cockburn, Geo. P.,	Sturgeon Falls Agency, Ont.. 36
Cockburn Island Band, Ont.,	Robert Thorburn.. 9
Colchester County, N.S., Micmacs,	Thomas B. Smith.. 70
Comire, A. O., M.D.,	Abenakis of St. Francis, Que.. 41
Conroy, H. A.,	Treaty No. 8, N.W.T.. 200
Coqualeetza Industrial School, B.C.,	Rev. Joseph Hall.. 409
Corker, A. W.,	Alert Bay Girls' Home, B.C.. 394
"	Alert Bay Industrial School, B.C.. 403
Coté's Band, Pelly Agency, N.W.T.,	H. A. Carruthers.. 169
Courtney, Joseph,	Pas Agency, Manitoba Superintendency.. 88
Couchiching Band, Ont.,	John P. Wright.. 84
Cowichan Agency, B.C.,	W. R. Robertson.. 218
Cowessess Band, Crooked Lake Agency, N.W.T.,	J. A. Sutherland.. 149
" Boarding School,	Rev. S. Perrault, O.M.I.. 336
Crawford, E. H.,	Birtle Boarding School.. 327
Crooked Lake Agency, N.W.T.,	J. A. Sutherland.. 148
Crops,	*See* 'Agricultural and Industrial Statistics,' Part II, pages 85-149, also side headings in each report.. .. ..
Crowfoot Boarding School, N.W.T.,	Rev. J. Riou, O.M.I.. 333
Crowstand Boarding School, Assa.,	W. McWhinney.. 335
Cumberland County, N.S., Micmacs,	F. A. Rand, M.D.. 71
Cunningham, Rev. E. J., O.M.I.,	Onion Lake R.C. Boarding School.. 357

D.

Day, J. P. G.,	Battleford Agency, N.W.T.. 127
Delmas, Rev. H., O.M.I.,	Thunderchild's Boarding School, N.W.T. 366
DeBeck, G. W.,	Kwawkewlth Agency, B.C.. 254

D—*Concluded.*

Desert River, Que., Algonquins, W. J. McCaffrey.. 43
Digby County, N.S., Micmacs, Jas. H. Purdy.. 72
Ditcham, Rev. Geo., Lytton Industrial School, B.C.. 418
Dokis Band, Ont., Geo. P. Cockburn.. 36
Donckele, Rev. G., Kuper Island Industrial School, B.C.... 416
Doucet, Rev. L., O.M.I., Peigan R. C. Boarding School, Alta.. .. 360
Duck Lake Agency, Sask., J. Macarthur.. 150
" Boarding School, Rev. O. Charlebois, O.M.I.. 338

E.

Eagle Lake Band, Ont., R. S. McKenzie.. 100
Edmonton Agency, N.W.T., Jas. Gibbons.. 152
Edmundston Band, N.B., Jas. Farrell... 63
Education, *See* page 301, also side heading 'Education' in each Indian agent's report; also Part II, pages 3-57.
Eel Ground Band, N.B. Wm. D. Carter.. 60
Eel River Band, N.B., Wm. D. Carter.. 59
Elkhorn Industrial School, Man., A. E. Wilson.. 321
Emmanuel College, Prince Albert, Sask., Rev. Jas. Taylor.. 341
Employees, *See* 'Officers and Employees,' Part II, pages 151-166.. .. ..
English, Adam, Chippewas of Sarnia.. 5
Enoch's Band, Edmonton Agency, N.W.T., Jas. Gibbons.. 153
Ermineskin's Boarding School, Alta., Rev. G. Moulin.. 343
Escoumains Band, Que., A. Gagnon.. 54
Eskasoni Agency, N.S., Rev. A. Cameron. 68

F.

Falher, Rev. C., O.M.I., Lesser Slave Lake R. C. Boarding School. 352
Farrell, James, Northern and Southwestern Divisions of New Brunswick.. 63
Ferrier, Rev. T., Brandon Industrial School.. 319
File Hills Band, Qu'Appelle Agency, N.W.T., R. L. Ashdown.. 176
" Ex-pupil Colony, R. L. Ashdown.. 177
" Boarding School, Kate Gillespie.. 344
Fleetham, T. J., Norway House Agency.. 86
Fort Frances Agency, Manitoba Suptcy., J. P. Wright.. 82
Fort William Band, Ont., L. U. Bonin.. 26
" Orphanage, Sisters of St. Joseph.. 303
Fraser, Rev. John, Micmacs of Richmond County, N.S.. .. 76
Fraser River Agency, B.C., R. C. McDonald.. 226

G.

Gagné, Rev. J., Micmacs of Maria, Que.. 48
Gagnon, Adolphe, Bersimis Agency, Lower St. Lawrence.. 54
Galbraith, R. L. T., Kootenay Agency, B.C.. 250
Gale, Gervase Edward, Blood C.E. Boarding School, N.W.T.... 330
Gambler's Band, Birtle Agency, Man., G. H. Wheatley.. 135
Garden River Band, Ont., Wm. L. Nichols.. 23
George, Rev. T. T., Mount Elgin Industrial Institute.. 306
Georgina Island, Ont., Chippewas, John Yates.. 2
Gibbons, James, Edmonton Agency, N.W.T.. 152
Gibson or Watha Band, Ont., W. B. Maclean.. 32
Gillespie, Kate, File Hills Boarding School, N.W.T.. .. 344
Golden Lake Agency, Ont., Martin Mullin.. 8
Gooderham, J. H., Peigan Agency, N.W.T.. 168
Gordon's Boarding School, N.W.T., M. Williams... 346
Gore Bay Agency, Ont., Robert Thorburn.. 9
Graham, W. M., Qu'Appelle Inspectorate—Schools.. 443
Grant, W. S., Hobbema Agency, N.W.T.. 157
Grassy Narrows Band, Ont., R. S. McKenzie.. 102
Guysborough County, N.S. Micmacs, John R. McDonald.. 68

H.

Hagan, Samuel, Thessalon Agency, Ont.. 38
Halifax County, N.S., Micmacs, Rev. Chas. E. McManus.. 72
Hall, Rev. Jos., Coqualeetza Industrial Institute, B.C... .. 409
Hants County, N.S., Micmacs, A. Wallace.. 73
Harlow, Charles, Micmacs of Queen's County, N.S.. 76
Hay River Boarding School, Mackenzie District. Rev. Thos. J. Marsh.. 347

H—*Concluded.*

Haynes, W. R.,	Peigan C. E. Boarding School, N.W.T..	359
Hendry, W. A.,	Portage la Prairie Boarding School, Man.	316
Henvey Inlet Band, Ont.,	W. B. Maclean..	31
High River Industrial School, Alta.,	Rev. A. Naesens..	387
Hobbema Agency, N.W.T.,	W. S. Grant..	157
Hogbin, Rev. Geo. H.,	Calgary Industrial School, N.W.T..	374
Holy Angels Boarding School, Lake Athabaska,	Sister McDougall..	350
Hugonard, Rev. J.,	Qu'Appelle Industrial School, N.W.T....	377
Hungry Hall Bands, Ont.,	J. P. Wright..	83
Hurons of Lorette, Que.,	A. O. Bastien..	44

I.

Indian Commissioner for Manitoba and N.W.T.,	Hon. David Laird..	201
Indian Island Band, N.B.,	Wm. D. Carter..	61
Indian Supt. for British Columbia,	A. W. Vowell..	293
Indian Supt. for British Columbia,	A. W. Vowell..	289
Indian Trust Fund Accounts,	*See* 'Return C,' Part II, page 169..	
Industries,	*See* side heading in each report 'Occupations,' and names of industries..	
Inspection of Agencies,	*See* 'W. J. Chisholm,' 'S. R. Marlatt' and 'S. J. Jackson'.	
Inspection of Schools,	*See* 'W. J. Chisholm,' 'S. R. Marlatt' and 'W. M. Graham'.	
Inverness County, N.S., Micmacs,	Rev. D. McPherson..	74
Iroquois of Caughnawaga, Que.,	J. Blain..	46
" of St. Regis, Que.,	George Long...	47
Irwin, Archibald,	Kamloops-Okanagan Agency, B.C..	236
Irwin, R. G.,	Micmacs of Shelburne County, N.S.. ..	77
Islington Band, Man.,	R. S. McKenzie..	99

J.

Jackson, S. J.,	Lake Winnipeg and Rat Portage Inspectorate—Agencies..	111
James Seenum's Band or Whitefish Lake Band, N.W.T.,	G. G. Mann..	179
James Smith's Band, Duck Lake Agency, N.W.T.	J. Macarthur..	152
John Smith's Band, Duck Lake Agency, N.W.T.,	J. Macarthur..	151
Joseph's Band, Edmonton Agency, N.W.T.,	Jas. Gibbons..	156
Jowett, J.W.,	Blood Agency, Alta..	141

K.

Kakewistahaw Band, Crooked Lake Agency,	J. A. Sutherland...	149
Kopwayawakenum's Band, Carlton Agency,	J. H. Price..	146
Kamloops Industrial School, B.C.,	Rev. A. M. Carlon, O.M.I..	411
Kamloops-Okanagan Agency, B.C.,	A. Irwin..	236
Keeheewin's Band, Onion Lake Agency, N.W.T.,	W. Sibbald..	165
Keeseekoowenin's Band, Birtle Agency, N.W.T.	G. H. Wheatley..	134
Kenemotayoo's Band, Carlton Agency, N.W.T.,	J. H. Price..	146
Key's Band, Pelly Agency, N.W.T.,	H. A. Carruthers..	170
King, Geo. Ley,	Shingwauk and Wawanosh Homes, Sault St. Marie, Ont..	307
King's County, N.S., Micmics,	C. E. Beckwth..	74
Kingsclear Band, N.B.,	Jas. Farrell	65
Kisickonse's Band, Pelly Agency, N.W.T.,	H. A. Carruthers	170
Kootenay Agency, B.C.,	R. L. T. Galbraith..	250
" Industrial School,	Rev. N. Coccola...	414
Kuper Island Industrial School, B.C.,	Rev. G. Donckele..	416
Kwawkewlth Agency, B.C.,	G. W. DeBeck..	254

L.

Lac des Mille Lacs Band, Ont.,	R. S. McKenzie..	100
Lac la Biche, Saddle Lake Agency, N.W.T.,	G. G. Mann..	180
Lac la Croix Band, Ont.,	J. P. Wright...	86
Lac Seul Band, Ont.,	R. S. McKenzie..	101
Lacy, John,	Micmacs of Annapolis County, N.S.	67
Laird, Hon. David,	Indian Commissioner for Man. and N.W.T	201
Lake Manitoba Inspectorate—Agencies,	S. R. Marlatt...	103
" " —Schools,	S. R. Marlatt..	423
Lake St. John, Que., Montagnais,	Alphonse Marcoux..	50
" Superior, Ojibbewas,	*See* Ojibbewas..	
" Timiskaming Band, Que.,	A. Burwash..	58
" Two Mountains Band, Que.,	Jos. Perillard	47
" Winnipeg Inspectorate, Man.—Agencies,	S. J. Jackson..	111

L—*Concluded.*

Lands,	*See* Indian Land Statement, Part II, pp. 58-60
Lennox Island Band, P.E.I.,	J. O. Arsenault	79
LeVern, Rev. J. L., O.M.I.,	Blood R. C. Boarding School, N.W.T.	331
Lesser Slave Lake C. E. Boarding School,	C. D. White	351
" R. C. Boarding School,	Rev. C. Falher, O.M.I.	352
Little Forks Band, Ont.,	J. P. Wright	84
Little Pine's Band, Battleford Agency, N.W.,T.,	J. P. G. Day	129
Long, Geo.,	Iroquois of St. Regis	47
Long Lake Band, Ont.,	L. U. Bonin	29
Long Sault Bands, Ont.,	J. P. Wright	83
Lorette, Que., Hurons,	A. O. Bastien	44
Loring, Richard E.,	Babine and Upper Skeena River Agency, B.C.	209
Lousley, J. A. G.,	Norway House Boarding School	314
Lytton Industrial School, B.C.,	Rev. Geo. Ditcham	418

Mac. or Mc.

Macarthur, J. A.,	Duck Lake Agency, N.W.T.	150
McCaffrey, W. J.,	Algonquins of River Desert, Que.	43
Macdonald, A. J.,	Micmacs of Victoria County, N.S.	78
McDonald, A. R.,	Moravians of the Thames, Ont.	22
McDonald, J. R.,	Micmacs of Antigonish and Guysborough Counties, N.S.	68
McDonald, R. C.,	Fraser River Agency	226
McDougall, J. B.,	Walpole Island Agency	40
McDougall Orphanage, Morley, Alta.,	J. W. Niddrie	356
McFarlane, Wm.,	Mississaguas of Rice and Mud Lakes, Ont.	18
McGibbon, Chas.,	Chippewas of Christian Island, Ont.	1
McIntyre, D. K., M.D.,	Sydney Agency, N.S.	69
McIver, John,	Chippewas of Nawash, Cape Croker, Ont.	3
McKay, Rev. H.,	Round Lake Boarding School, N.W.T.	362
McKenzie, Robert S.,	Rat Portage and Savanne Agencies.	95
McKitrick, Austin G.,	Cecilia Jeffrey Boarding School	312
Maclean, W. B.,	Parry Sound Superintendency, Ont.	30
McLeod, Rev. J. D.,	Micmacs of Pictou County, N.S.	75
McManus, Rev. Chas. E.,	Micmacs of Halifax County, N.S.	72
McNeill, A. J.,	Sarcee Agency, N.W.T.	180
McPhee, D. J.,	Chippewas of Rama	4
McPherson, Rev. Donald,	Micmacs of Inverness County, N.S.	74
McWhinney, W.,	Crowstand Boarding School, Assa.	335

M.

Maganettawan Band, Ont.,	W. B. Maclean	33
" "	C. L. D. Sims	13
Magnan, Rev. J. A.,	Muscowequan's Boarding School, N.W.T.	354
Manitou Rapids Band, Ont.,	J. P. Wright	83
Manitoulin Island, unceded,	C. L. D. Sims	16
Manitowaning Agency, Ont.,	C. L. D. Sims	11
Manitowapah Agency, Man.,	S. Swinford	91
Maniwaki Reserve, Que.,	W. J. McCaffrey	43
Mann, George G.,	Saddle Lake Agency, N.W.T.	178
Maria, Que., Micmacs,	Rev. J. Gagné	48
Marchal, Rev. Ch.,	St. Mary's Mission Boarding School, B.C.	398
Marcoux, Alphonse,	Montagnais of Lake St. John	50
Markle, J. A.,	Blackfoot Agency, N.W.T.	138
Marlatt, S. R.,	Lake Manitoba Inspectorate—Agencies	103
"	Lake Manitoba Inspectorate—Schools	423
Marsh, Rev. Thos. J.,	Hay River Boarding School, Mackenzie District	347
Martineau, H.,	Touchwood Hills Agency, N.W.T.	183
Matheson, Rev. E.,	Battleford Industrial School, Sask.	372
Matheson, Rev. J. R.,	Onion Lake C.E. Boarding School, Sask.	358
Maurus, Rev. P.,	Clayoquot Industrial School	405
Metlakahtla Industrial School, B.C.,	John R. Scott	420
Michel's Band, Edmonton Agency, N.W.T.,	Jas. Gibbons	154
Michipicoten Band, Ont.,	Wm. L. Nichols	25
Micmacs of Annapolis County, N.S.,	John Lacy	67
" Antigonish County, N.S.,	John R. McDonald	68
" Cape Breton County, N.S.,	Rev. A. Cameron, D. K. McIntyre, M.D.	68-69
" Colchester County, N.S.,	Thomas B. Smith	70
" Cumberland County, N.S.,	F. A. Rand, M.D.	71
" Digby County, N.S.,	Jas. Purdy	72
" Guysborough County, N.S.,	John R. McDonald	68

M—*Concluded.*

Micmacs of Halifax County, N.S.,	Rev. Chas. E. McManus	72
" Hants County, N.S.,	A. Wallace	73
" Inverness County, N.S.,	Rev. D. McPherson	74
" King's County, N.S.,	Chas. E. Beckwith	74
" Lunenburg County, N.S.,	Charles Harlow	76
" Maria, Que.,	Rev. J. Gagné	48
" Pictou County, N.S.,	Rev. J. D. McLeod	75
" Prince Edward Island,	J. O. Arsenault	79
" Queen's County, N.S.,	Charles Harlow	76
" Restigouche, Que.,	J. Pitre	49
" Richmond County, N.S.,	Rev. John Fraser	76
" Shelburne County, N.S.,	R. G. Irwin	77
" Yarmouth County, N.S.,	W. H. Whalen	79
" Victoria County, N.S.,	A. J. Macdonald	78
Mingan Band, Que.,	W. D. B. Scott	56
Mississagi River, Ont., Ojibbewas,	S. Hagan	38
Mississaguas of Alnwick, Ont.,	John Thackeray	16
" the Credit, Ont.,	W. C. Van Loon	17
" Mud Lake, Ont.,	Wm. McFarlane	18
" Rice Lake, Ont.,	Wm. McFarlane	18
" Scugog, Ont.,	A. W. Williams	20
Mistawasis Band, Carlton Agency, N.W.T.,	J. H. Price	145
Mohawk Institute, Brantford, Ont.,	Rev. R. Ashton	304
Mohawks of the Bay of Quinté, Ont.,	Wm. R. Aylsworth	20
Montagnais of Lower St. Lawrence,	A. Gagnon	54
" "	W. D. B. Scott	56
" Lake St. John, Que.,	Alphonse Marcoux	50
Moosejaw Sioux, N.W.T.,	Thos. W. Aspdin	127
Moose Mountain Agency, N.W.T.,	W. Murison	161
Moosomin's Band, Battleford Agency, N.W.T.,	J. P. G. Day	131
Moravians of the Thames, Ont.,	A. R. McDonald	22
Morell Band, P.E.I.,	J. O. Arsenault	79
Morrow, Geo. W.,	Northwest Coast Agency, B.C.	256
Motion, Jas. R.,	Alberni Boarding School, B.C.	391
Moulin, Rev. G.,	Ermineskin's Boarding School, Alta.	343
Mount Elgin Industrial Institute, Ont.,	Rev. T. T. George	306
Mud Lake, Ont., Mississaguas,	Wm. McFarlane	18
Mullin, Martin,	Golden Lake Agency, Ont.	8
Munsees of the Thames, Ont.,	S. Sutherland	6
Murison, W.,	Moose Mountain Agency, N.W.T.	161
Muscowequan's Boarding School, N.W.T.,	Rev. J. A. Magnan	354
Muscowpetung's Band, Qu'Appelle Agency, N.W.T	R. L. Ashdown	173

N.

Naessens, Rev. A.,	High River Industrial School	387
Neill, Alan W.,	West Coast Agency, B.C.	272
New Brunswick,	Wm. D. Carter and Jas. Farrell	59-63
Niacatchewenin Band, Ont.,	J. P. Wright	85
Nichols, Wm. L.,	Ojibbewas of Lake Superior, Eastern Div.	23
Nickickousemenecanning Band, Ont.,	J. P. Wright	85
Niddrie, J. W.,	McDougall Orphanage, Morley, Alta.	356
Nipigon Band, Ont.,	L. U. Bonin	28
Nipissing Band, Ont.,	Geo. P. Cockburn	36
North Sydney Band, N.S.,	D. K. McIntyre, M.D.	70
Northwest Angle Bands, Ont.,	R. S. McKenzie	97
Northwest Coast Agency, B.C.,	Geo. W. Morrow	256
Norway House Agency, Manitoba Suptcy.,	T. J. Fleetham	86
Norway House Boarding School,	J. A. G. Lousley	314
Nova Scotia,	*See* under names of counties, also under 'Micmacs'.	

O.

Oak Lake Sioux Band, Birtle Agency, Man.,	G. H. Wheatley	134
Oak River Sioux Band, Birtle Agency, Man.,	G. H. Wheatley	134
Obidgewong Band, Ont.,	Robert H. Thorburn	10
Ochapowace's Band, Crooked Lake Agency, N.W.T.,	J. A. Sutherland	148
Officers,	*See* Officers and Employees, Part II, pages 151-166.	
Ojibbewas of Lake Superior, Eastern Division,	Wm. L. Nichols	23
" " Western Division,	L. U. Bonin	26
Ojibbewas of Mississagi River, Ont.,	S. Hagan	38
Oka Band, Que.,	J. Perillard	47
Okanagan Agency, B.C.,	A. Irwin	236

O—*Concluded.*

Okemassis' Band, Duck Lake Agency, N.W.T.,	J. Macarthur	151
One Arrow's Band, Duck Lake Agency, N.W.T.,	J. Macarthur	150
Oneidas of the Thames, Ont.,	S. Sutherland	6
Onion Lake Agency, N.W.T.,	W. Sibbald	164
" C. E. Boarding School,	Rev. J. R. Matheson	358
" R.C. Boarding School,	Rev. E. J. Cunningham, O.M.I.	357
Ooneepowhayo's Band, Onion Lake Agency, N.W.T.,	W. Sibbald	165
Oromocto Band, N.B.,	Jas. Farrell	66

P.

Paquin, Rev. J., S.J.,	Wikwemikong Industrlal School	310
Parry Island Band, Ont.,	W. B. Maclean	30
Parry Sound Superintendency, Ont.,	W. B. Maclean	30
Pas Agency, Sask.,	Jos. Courtney	88
Pasquah's Band, Qu'Appelle Agency, N.W.T.,	R. L. Ashdown	174
Paul (Miss), Hannah M.,	Port Simpson Girls' Home, B.C.	396
Paul's Band, Edmonton Agency, N.W.T.,	Jas. Gibbons	156
Pays Plat Band, Ont.,	L. U. Bonin	28
Peigan Agency, N.W.T.,	J. H. Gooderham	168
" C. E. Boarding School,	W. R. Haynes	359
" R.C. Boarding School,	Rev. L. Doucet, O.M.I.	360
Pelly Agency, N.W.T.,	H. A. Carruthers	169
Perillard, Jos.,	Lake of Two Mountains Band, Que.	47
Perrault, Rev. S., O.M.I.,	Cowessess Boarding School, Assa.	336
Petaquakey's Band, Carlton Agency, N.W.T.,	J. H. Price	144
Piapot's Band, Qu'Appelle Agency, N.W.T.,	R. L. Ashdown	173
Pic Band, Ont.,	L. U. Bonin	29
Pictou County, N.S., Micmacs,	Rev. J. D. McLeod	75
Pine Creek Boarding School,	Rev. W. Chaumont	316
Pitre, Jeremie,	Micmacs of Restigouche, Que.	49
Point Grondin Band, Ont.,	C. L. D. Sims	12
Population,	*See* 'Census Return,' Part II, pages 61-84 also side heading 'Vital Statistics' in each report.	
Port Simpson Boys' Boarding School, B.C.,	Chas. M. Richards	395
" Girls' Home, B.C.,	(Miss) Hannah M. Paul	396
Portage la Prairie Agency, Man.,	S. Swinford	31
" Boarding School,	W. A. Hendry	316
Pottawattamies of Walpole Island, Ont.,	J. B. McDougall	40
Poundmaker's Band, Battleford Agency, N.W.T.,	J. P. G. Day	129
Price, J. H.,	Carlton Agency	144
Prince Edward Island,	J. O. Arsenault	79
Purdy, James H.,	Micmacs of Digby County, N.S.	72
Puskeeahkeeweein Band, Onion Lake Agency, N.W.T.,	W. Sibbald	165

Q.

Qu'Appelle Agency, N.W.T.,	R. L. Ashdown	172
" Industrial School,	Rev. J. Hugonard	377
" Inspectorate—Schools,	W. M. Graham	443
Queen's County, N.S., Micmacs,	Chas. Harlow	76

R.

Rama, Ont., Chippewas,	D. J. McPhee	4
Rand, F. A., M.D.,	Micmacs of Cumberland County, N.S.	71
Rat Portage Agency, Man. Superintendency,	R. S. McKenzie	95
" Band, Ont.,	R. S. McKenzie	96
" Boarding School, Ont.,	Rev. C. Cahill, O.M.I.	318
" Inspectorate—Agencies,	S. J. Jackson	111
Red Bank Band, N.B.,	Wm. D. Carter	60
Red Deer Industrial School, N.W.T.,	Rev. J. P. Rice	380
Red Pheasant's Band, Battleford Agency, N.W.T.	J. P. G. Day	127
Red Rock Band, Ont.,	L. U. Bonin	27
Regina Industrial School, N.W.T.,	Rev. J. A. Sinclair	383
Reid, J. Lestock, D.L.S.,	Survey Report Manitoba and N.W.T.	207
Religion,	*See* side heading 'Religion' in each report, Part I; also 'Census Return,' Part II, pp. 61-84	
Restigouche Band, Que.,	J. Pitre	49
Rice, Rev. J. P.,	Red Deer Industrial School, Alta.	380
Rice Lake, Ont., Mississaguas,	Wm. McFarlane	18
Richards, Chas. M.,	Port Simpson Boys' Boarding School, B.C.	395

R—*Concluded.*

Richmond County, N.S., Micmacs, Rev. John Fraser.. 76
Riou, Rev. J., O.M.I., Crowfoot Boarding School, N.W.T... 333
River Desert Band, Que., W. J. McCaffrey.. 43
Robertson, W. R., Cowichan Agency, B.C.. 218
Rolling River Band, Birtle Agency, Man., G. H. Wheatley.. 135
Round Lake Boarding School, Assa., Rev. H. McKay.. 362
Ruelle, Rev. N. A., St. Boniface Industrial School, Man.. .. 326
Rupert's Land, Industrial School, Man., J. Thompson.. 323

St.

St. Albert Boarding School, Alta., Sister L. A. Dandurand.. 365
St. Augustine Boarding School, Smoky River, N.W.T., Sister Sostene.. 364
St. Bernard's Mission Boarding School, Lesser Slave Lake, N.W.T., Rev. C. Falher, O.M.I.. 352
St. Boniface Industrial School, Man., Rev. N. A. Ruelle.. 326
St. Francis, Que., Abenakis, A. O. Comire, M.D.. 41
St. John's Homes, Blackfoot Reserve, N.W. T., H. W. Gibbon Stocken.. 328
St. Joseph's Indian Home, Fort William, Ont., Sisters of St. Joseph.. 303
St. Mary's Band, N.B., James Farrell.. 65
St. Mary's Mission Boarding School, B.C., Rev. Ch. Marchal.. 398
St. Regis, Que., Iroquois, Geo. Long.. 47

S.

Saddle Lake Agency, N.W.T., Geo. G. Mann.. 178
" Band, Geo. G. Mann.. 178
Sakimay's Band, Crooked Lake Agency, N.W.T., J. A. Sutherland.. 149
Sanitation, *See* side heading 'Health and Sanitation' in each report.
Sarcee Agency, N.W.T., A. J. McNeill... 180
Sarcee Boarding School, Alta., Ven. J. W. Tims.. 363
Sarnia, Ont., Chippewas, A English.... 5
Savanne Agency, Ont., R. S. McKenzie.. 100
Saugeen, Ont., Chippewas, John Scoffield.. 33
Schools, *See* side heading 'Education' in each report ; also page 301, Part I, and pages 3-57, Part II.
Scoffield, John, Chippewas of Saugeen.. 33
Scott, John R., Metlakahtla Industrial School. B.C.. 420
Scott, W. D. B., Montagnais of Lower St. Lawrence. .. 56
Scugog, Ont., Mississaguas, A. W. Williams.. 20
Seekaskootch Band, Onion Lake Agency, N.W.T. W. Sibbald.. 164
Seine River Band, Ont., J. P. Wright.. 85
Semmens, Rev. John, Clandeboye Agency, Manitoba Suptcy.... 80
Serpent River Band, Ont., S. Hagan.. 39
Seven Islands Band, Que., A. Gagnon... 55
Shawanaga Band, Ont., W. B. Maclean.. 31
Sheguiandah Band, Ont., C. L. D. Sims.. 15
Shelburne County, N.S., Micmacs, R. G. Irwin.. 77
Sheshegwaning Band, Ont., Robert Thorburn.. 10
Shingwauk and Wawanosh Homes, Sault Ste. Marie, Ont., Geo. Ley King.. 307
Shoal Lake Band, Man., R. S. McKenzie.. 96
Sibbald, W., Onion Lake Agency, N.W.T... 164
Sibbald, H. E., Stony Agency, N.W.T... 182
Sims, Chas. L. D., Manitowaning Agency, Ont.. 11
Sinclair, Rev. J. A., Regina Industrial School, Assa.. 383
Sister L. A. Dandurand, St. Albert Boarding School, N.W.T.. .. 365
" Mary Amy, Squamish Mission Boarding School, B.C. 400
" Matthias, Vermilion Boarding School, N.W.T.. .. 367
" McDougall, Holy Angels Boarding School, N.W.T... 350
" Sostene, Smoky River Boarding School, N.W.T... 364
" Superior Amy, All Hallows Boarding School, Yale, B.C.. 401
" Tiburce, Wabiscow Lake R.C. Boarding School.. 368
Sisters of St. Joseph, St. Joseph's Indian Home, Ont.. 303
Six Nation Indians, Brantford, Ont., E. D. Cameron.. 34
Skinner, E. M., Survey Report, B.C.. 296
Smith, Thos. B., Micmacs of Colchester County, N.S.. .. 70
Smoky River Boarding School, N.W.T., Sister Sostene.. 364
Snake Island, Ont., Chippewas, John Yates... 2
South Bay Band, Ont., C. L. D. Sims.. 15
Spanish River Band, Ont., S. Hagan and C. L. D. Sims.. 40-14
Squamish Mission Boarding School, B.C., Sister Mary Amy.. 400
Standing Buffalo Band, Qu'Appelle Agency, N.W.T., R. L. Ashdown.. 175

S—*Concluded.*

Stangecoming Band, Ont., J. P. Wright.. 85
Statistics, Agricultural and Industrial, *See* 'Agricultural and Industrial Statistics,' Part II, pages 85-149.
" Vital, *See* side heading 'Vital Statistics' in each report, Part I; also 'Census Return,' Part II, pages 61-84.
Stocken, H. W. Gibbon, Blackfoot Boarding Schools, N.W.T.. .. 328
Stony Agency, N.W.T., H. E. Sibbald.. 182
" Band, Battleford Agency, N.W.T., J. P. G. Day.. 130
Sturgeon Falls Agency, Ont., Geo. P. Cockburn.. 36
" Lake Band, Ont., J. P. Wright.. 86
Sucker Creek Band, Ont., C. L. D. Sims.. 14
" Lake Band, Ont., C. L. D. Sims.. 14
Survey Report, British Columbia, E. M. Skinner.. 296
" " Sidney Williams.. 298
" " Peter Burnet, D.L.S... 297
Survey Report, Manitoba and N.W.T., J. Lestock Reid, D.L.S.. 207
Sutherland, S., Chippewas, Munsees and Oneidas of the Thames.. 6
Sutherland, J. A., Crooked Lake Agency, N.W.T.. 148
Sweet Grass Band, Battleford Agency, N.W.T., J. P. G. Day.. 128
Swinford, S., Portage la Prairie and Manitowapah Agencies.. 91
Sydney Band, N.S., D. K. McIntyre, M.D.. 69

T.

Tahgaiwinini Band, Ont., C. L. D. Sims.. 13
Taylor, Rev. Jas., Emmanuel College, Prince Albert, Sask. 341
Temagaming Band, Ont., Geo. P. Cockburn.. 37
Thackeray, John, Mississaguas of Alnwick, Ont... 16
Thames River, Ont., Chippewas, S. Sutherland.. 7
" Moravians, A. R. McDonald.. 22
" Munsees, S. Sutherland... 7
" Oneidas, S. Sutherland.. 6
Thessalon Agency, Ont., S. Hagan.. 38
" River Band, Ont., S. Hagan.. 38
Thompson, J., Rupert's Land Industrial School.. 323
Thorburn, Robert, Gore Bay Agency, Ont.. 9
Thunderchild's Boarding School, N.W.T., Rev. H. Delmas, O.M.I.. 366
Timiskaming Band, Que., A. Burwash.. 58
Tims, Ven. J. W., Sarcee Boarding School, Alta... 363
Tobique Band, N.B., Jas. Farrell.. 63
Touchwood Hills Agency, N.W.T., H. Martineau.. 183
Treaty No. 8, N.W.T., H. A. Conroy.. 200
Turtle Mountain Sioux Band, Birtle Agency, Man., G. H. Wheatley.. 134
Tyendinaga Band, Ont., Wm. R. Aylsworth.. 20

V.

Valley River Band, Birtle Agency, Man., G. H. Wheatley.. 135
Van Loon, W.C., Mississaguas of the Credit, Ont.. 17
Vermilion Boarding School, Athabasca, Sister Matthias.. 367
Victoria County, N.S., Micmacs, A. J. Macdonald.. 78
Viger, Que., Amalecites, Edouard Beaulieu.. 44
Vowell, Arthur W., Indian Superintendent for B. Columbia.. 289
" Indian Reserve Commissioner, B.C.. .. 293

W.

Wabigoon Band, Ont., R. S. McKenzie.. 100
Wabiscow Lake C.E. Boarding School, N.W.T., Chas. Riley Weaver.. 369
" R.C. Boarding School, N.W.T., Sister Tiburce.. 368
Wabuskang Band, Ont., R. S. McKenzie.. 102
Wahspaton's Band, Carlton Agency, N.W.T., J. H. Price.. 147
Wallace, Alonzo, Micmacs of Hants County, N.S.. 73
Walpole Island Agency, Ont., J. B. McDougall.. 40
Watha or Gibson Band, Ont., W. B. Maclean.. 32
Wawanosh Home, Sault Ste. Marie, Ont., Geo. Ley King.. 307
Waywayseecappo's Band, Birtle Agency, Man., G. H. Wheatley.. 135
Weaver, Chas. Riley, Wabiscow Lake C. E. Boarding School, N.W.T... 369
Weemistikooseahwasis Band, Onion Lake Agency, W. Sibbald... 165

W—*Concluded.*

West Bay Band, Ont., Robert Thorburn.. 9
West Coast Agency, B.C., Alan W. Neill.. 272
Whalen, W. H., Micmacs of Yarmouth County, N.S.. 79
Wheatley, G. H., Birtle Agency, Man.. 133
White, C. D., Lesser Slave Lake C. E. Boarding School. 351
Whitefish Bay Band, Man., R. S. McKenzie.. 98
" Lake Band, Ont C. L. D. Sims.. 12
" River Band, Ont., C. L. D. Sims... 11
Wikwemikong Industrial School, Ont., Rev. J. Paquin, S.J.. 310
Wild Land Reserve, Ont., J. P. Wright.. 84
William Twatt's Band, Carlton Agency, N.W.T., J. H. Price.. 144
Williams, M., Gordon's Boarding School, N.W.T... .. 346
Williams, A. W., Mississaguas of Scugog, Ont.. 20
Williams, Sidney, Survey Report, B.C.. 298
Williams Lake Agency, B.C., E. Bell.. 278
" Industrial School, Rev. H. Boening.. 422
Wilson, A. E., Elkhorn Industrial School, Man.. 321
Woodstock Band, N.B., Jas. Farrell.. 64
Wright, John P., Fort Frances Agency, Manitoba Suptcy. 82

Y.

Yale (All Hallows) Boarding School, B.C., Sister Superior Amy.. 401
Yarmouth County, N.S., Micmacs, W. H. Whalen.. 79
Yates, John, Chippewas of Georgina and Snake Islands, Ont... 2

REPORT

OF THE

DEPARTMENT OF INDIAN AFFAIRS

FOR THE YEAR ENDED JUNE 30, 1904

DEPARTMENT OF INDIAN AFFAIRS,

OTTAWA, December 1, 1904.

The Honourable CLIFFORD SIFTON,
Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the report of the Department of Indian Affairs for the fiscal year ended June 30, 1904, the first complete year of my supervision of Indian matters. The report will show that the Indians, composed of a variety of tribes and bands, widely differing in their stages of social development and environment, and scattered over a geographical range extending from the Pacific coast on the west, to the Atlantic seaboard on the east, and from the United States on the south, to the northern limit of Treaty No. 8, which touches the northeast angle of Great Slave lake in about latitude 63 north, with hardly any exception have in their several spheres enjoyed a fair average of prosperity.

A careful consideration of the reports and statistical statements appended, to which I beg to refer you for more detailed information, will divulge that although in the province of Ontario there has been in almost all directions a slight decrease of the material prosperity enjoyed during the preceding year, the cause of which is not apparent, in all the other provinces there has been substantial progress, and while there has been but small perceptible advance in any of them towards the acquisition of the higher spirit of citizenship, to the absence of which reference was made last year, none the less the standard of civilization already reached has been fully maintained.

It may be remarked here that however much further development may be desired, still, should the Indians fail to make it, the country has no little reason to congratulate itself upon a policy which has transformed its aboriginal population into a law-respecting, prosperous and contented section of the community, which, so far from being a menace to or burden upon the commonwealth, contributes in many ways to its welfare.

In the younger provinces among the bands in process of civilization, where progress is naturally more noticeable, there has not been wanting growth in all the directions which make for independence, and as an example of the ultimate, cumulative effect of these often hardly perceptible gradations, it is well worth noting what the Indian Commissioner points out with reference to the Northwest Territories, as to the stage having been reached at which the able-bodied in the mixed farming districts have become practically self-supporting.

Looking back upon the time, well within the memory of many still engaged in the work, when the sudden and complete disappearance of the buffalo deprived the Indians of the plains of the main staple of their subsistence and created the inevitable necessity for the transformation of hordes of destitute savages into self-supporting members of the commonwealth, the attainment of the position to which the Commissioner refers, affords ample proof of what can be done by a little here and a little there, and is full of inspiration for the work which has yet to be accomplished in the direction of teaching these Indians to emerge from the condition of tutelage, and continue without support what they have learnt to do under close supervision. It may be observed here that it need cause neither surprise nor discouragement should some temporary appearance of retrogression attend the first steps of this further education.

Among the outlying bands remote from centres of civilization little change need be looked for. Their fluctuating prosperity depends upon the abundance or scarcity of fish, game and fur, and upon the clemency or inclemency of the winter season, and fortunately it is rarely that they are called upon to endure any thing that from their point of view could be called actual hardship.

The character of the districts inhabited by them for the most part precludes expectation of invasion by settlement, and such encroachment upon their solitudes by civilization as does and is likely to take place is so gradual and of such kind that the Indians concerned imperceptibly and without interference adapt themselves to any changing conditions.

All that is attempted with respect to these bands is to protect them from such unscrupulous traders as would use intoxicants as a medium for barter, to improve their habits of living and their moral tone, and to give them such rudimentary education as may be consistent with a due regard for the conditions under which they live, and from which there is no apparent prospect of their escape.

VITAL STATISTICS, 1904.

Province.	Births.	Deaths.	Gain.	Loss.
Ontario	565	450	115	.....
Quebec	313	196	117	.....
Nova Scotia	79	63	16	.....
New Brunswick	90	62	28	.....
Prince Edward Island	17	13	4	.....
British Columbia	778	887	.....	109
Manitoba	305	263	42	.....
Northwest Territories	495	446	49	.....
	2,642	2,380	371	109

It will be observed from the foregoing that within treaty limits, the births during the year have exceeded the deaths by 262.

For the preceding year the number of births was 2,311, and of deaths 2,143, so that as compared with it there has been a net decrease of 6.

CENSUS.

Province.	1903.	1904.	Increase.	Decrease.
Ontario	21,093	21,191	98	.....
Quebec	11,066	11,149	83	.....
Nova Scotia	1,930	1,998	68	.....
New Brunswick	1,699	1,694	.....	5
Prince Edward Island	301	292	.....	9
British Columbia	25,582	25,234	.....	348
Manitoba	6,829	6,775	.....	54
Northwest Territories	17,649	17,561	.....	88
Outside Treaty Limits	22,084	22,084	.....	.....
	108,233	107,978	249	504

It will be noticed that the net decrease in the population during the year has been 255, a discrepancy of 249 as compared with the net decrease of 6 in the natural increase, which is explained by the fact that the new agent for the Northwest Coast agency, B.C., has deducted 231 from the aggregate of the population in his agency as a result of his success in securing a more accurate census than appears to have been taken by his predecessor for some time past, which reduces the discrepancy to 18, attributable to fluctuation.

It seems difficult in some quarters to get rid of the idea, at one time doubtless quite justified, that the Indian is a dying race, doomed to extinction before the advance of civilization, but facts and statistics fail to support this view of the situation, excepting in so far as concerns the picturesque savage of fiction, who very greatly to the benefit of himself and his civilized neighbours has disappeared. In consideration of the extent to which this view still prevails, it seems pertinent to inquire whether there has been discovered any ineradicable, inherent defect, whether mental, moral or physical, in the Indian's constitution to prevent the successful direction of the forces by which he maintained himself in his original environment, into channels which will enable him to survive in the struggle for existence under civilized condtions.

In so far as some few tribes are concerned it would appear as if there were something endemic in their constitution which suggests their ultimate disappearance, unless it can be discovered and remedied. It may be admitted, moreover, with regard to the race generally, that it might succumb if exposed on the threshold of contact with civilization to its vices and left to cope with the superior knowledge of the unscrupulous, but it has been amply demonstrated in the older provinces that with protection and education the Indion can hold his own in all essential respects. It is, however, with his physical constitution that we are more concerned in this connection, and it cannot be denied that there is prevalent among the Indians a scrofulous condition, generally hereditary, which predisposes them to mesenteric con-

sumption, and still more to phthisis and other pulmonary, bronchial and catarrhal affections more or less kindred. Upon this morbid constitutional condition the first effect of civilization, apart from its vices, is injurious, the chief cause being the change from the open-air life to the vitiated atmosphere of the small, over-crowded, dark and ill-ventilated houses which are first substituted for the teepee or the wigwam, constituting a condition which, aggravated by unclean habits, particularly that of promiscuous expectoration, produces the necessary conditions for the development and propagation of the diseases referred to. As a consequence the comparative sanitary state of the Indians at this stage during any given year, resolves itself very much into a question as to whether atmospheric conditions during the winter and the spring have been favourable or otherwise for the development of the diseases enumerated. The unusual severity of last winter affected the general health detrimentally, and increased the death-rate, but so far as the future preservation of the race is concerned the hopeful feature is that the baneful effects were largely confined to bands which have not yet come under the influence of improved food, dress, dwellings, personal habits, &c., &c., which are so greatly alleviating, if not eradicating, the main cause of excessive mortality.

Despite the unfavourable season it is encouraging to observe that in every province excepting that of British Columbia, the birth has exceeded the death rate, and of the 109 deaths in excess of births in the excepted province 84 occurred in the West Coast agency, and the majority are directly attributable to the determined obstinacy with which these particular Indians cling to their potlaches, and in connection therewith congregate and crowd together in a manner which produces the most unsanitary conditions.

As ameliorating circumstances continue to improve and to extend, and as the excessive mortality among infants disappears through the discouragement of premature marriages and the education of the mothers, there seems no reason to doubt that the Indian population, which for some years past has been fully holding its own numerically, will enter upon a distinct and permanent era of increase.

In other respects there has been little concerning health to call for particular notice.

Small-pox continued to infest certain districts. In the southeastern division of New Brunswick it was carried to the reserve at the junction of the Tobique and St. John rivers, but was confined to five families, within three dwellings. At Saddle Lake and Battleford it broke out in a somewhat severe type, with two attendant fatalities at the former and three at the latter agency.

Whooping-cough was more or less epidemic in Prince Edward Island, and in the Rainy River, Pas, Portage la Prairie, Birtle districts, and in the Babine, Fraser River and Williams Lake agencies in British Columbia.

Measles broke out in Halifax county, N.S., at Maniwaki, Que., and in the Rainy River district.

Scarlet fever was epidemic among the Six Nations, but without fatality resulting, and was responsible for one death at the Pelican Narrows, on the border between the

Saskatchewan district and Athabasca, and some cases occurred in the Rainy River and Portage la Prairie districts.

AGRICULTURE AND LIVE STOCK.

Remarks relative to agriculture and the kindred industry of raising live stock may be prefaced by the following table showing the relative extent to which the Indians of the provinces mentioned engage in these occupations:—

Province.	Population.	Acres.	Horned Stock.	Horses.
1904.				
Ontario	21,191	18,006¾	6,558	3,632
Quebec	11,149	4,601	2,019	763
Nova Scotia	1,998	140¼	296	59
New Brunswick	1,694	622¾	48	12
Prince Edward Island	292	69½	.....	.....
British Columbia	25,234	8,675½	7,575	15,276
Manitoba	6,775	1,024½	2,479	646
Northwest Territories	17,561	11,961	18,852	12,247

With regard to these industries as carried on by the farming communities in the older provinces, there has been nothing during the year to call for particular comment. On many of the reserves in Ontario the methods of cultivation and the supply as well as quality of implements and of live stock are up to the average of the surrounding communities, and on others less advanced, steady progress is being made in the direction of the same standard.

Live stock is held in numbers compatible with mixed farming, and dairy produce is used for domestic consumption and for market, and where opportunity offers, milk is disposed of to the factories.

Agricultural exhibitions are held on some of the most progressive reserves, and the exhibits could compete with what are shown at any other provincial fairs.

The year's harvest of cereals and roots was a good average one, an extra yield of wheat, oats and corn having compensated for some lightness in other crops.

In Quebec there is not the same interest taken in husbandry. Some few years ago a depression in the markets for the industries which these Indians prefer, somewhat stimulated interest in agriculture, but the increased demand for labour in various directions and the revival of the markets for certain industries have tended to check that movement.

In the prairie districts of the Northwest Territories the Indians are more exclusively dependent upon agriculture and still more so on live stock than in any other part of the Dominion.

In some districts, notably in Treaty No. 7, the want of moisture, which is now being overcome by irrigation, and in others the erroneous impression engendered by defective methods of cultivation, that the maturing of cereals could not be depended

on, and again more generally the lack in earlier years of facilities for gristing and markets for grain necessitated reliance to a large extent upon the raising of live stock.

As the Indians have gradually learnt the value of cattle they have come to manifest strong practical interest in caring for them, as an example of which the fact may be mentioned that the Peigans, one of the bands who not many years ago could not be induced to take cattle on any consideration, have recently built some 11 miles of fencing, having purchased for themselves the necessary wire and staples and hauled the posts distances of from 12 to 15 miles.

For the most part the farming Indians throughout the territories have now as many animals as they can properly handle, and the care exercised for years past by the department in purchasing or inducing Indians to purchase good-class bulls has resulted in grading up the stock to a high standard of excellence.

The horses shown in the preceding statement, at any rate in British Columbia and the Northwest Territories, include a lot of inferior ponies, but the policy recently adopted in the territories of introducing stallions into the reserves with a view to grading up the native ponies to a marketable standard seems to be meeting with success, and in the not far distant future profitable results may be expected to accrue.

As to husbandry the improvement of methods of cultivation is attended by many difficulties, not the least of which has been the example set by the earlier settlers, who, finding a practically unlimited area of easily broken prairie lands available, and being handicapped by scarcity of labourers and labour-saving implements, adopted rough and ready methods which the Indians were much more ready to imitate than to abandon.

In some districts farming operations have been somewhat neglected in favour of other employment connected with the influx of settlers, but this interruption is only a temporary one.

In the long run the Indians may be expected to largely benefit from better markets, the cheapening of agricultural implements and machinery, as well as all other commodities, and the generally improved conditions which will result from the extension of railways to meet the requirements of settlement, and even the curtailment of their grazing and hay lands may ultimately prove to their advantage by preventing much of that loss which is inevitable when live stock wanders far afield.

Already the demand for lands in some districts is awakening the Indians to a juster appreciation of the value of their reserves and the benefit to be derived from cultivating them.

In so extensive a territory as that of the Northwest, uniformity of experience can not be expected, but on the whole somewhat unfavourable conditions for the maturing and harvesting of the grain disappointed the earlier promise of an exceptionally profitable yield.

In British Columbia the abundant and general natural resources of fish and game, as well as the prevalence of other openings for profitable employment, render the

Indians comparatively independent of agriculture and stock-raising, the prosecution of which industries is further restricted by the relatively limited areas of cultivable lands. Crops in the province were on the whole a fair success, although similar conditions to those in the Northwest Territories retarded harvesting.

Hay, from the same cause, was hard to cure, but fortunately the abundance of rain so improved the pasturage that the animals were in the best of condition to enter upon the winter. For that reason, and because of the long continuance of fine weather, which enabled stock to graze out well into the beginning of the new year, the hay held out even in districts where the spring was long in arriving, and little if any unusual loss occurred. Some of the farming communities in the province not only employ advanced methods of cultivation, but are well equipped with the latest improved implements for agriculture, and are generally augmenting the number of their live stock. Some bands possess exceptionally well-bred horses, although among others the number of somewhat worthless ponies is still too great.

The following table will show the comparative value of farm produce, including hay, raised in the various provinces during the year under review and the preceding one.

Province.	1903.	1904.	Increase.	Decrease.
	$ cts.	$ cts.	$ cts.	$ cts.
Ontario	339,621 58	330,986 63		8,634 95
Quebec	113,227 00	115,410 25	2,183 25	
New Brunswick	12,125 00	12,496 50	371 50	
Nova Scotia	10,282 90	13,157 50	2,874 60	
Prince Edward Island	1,747 00	1,830 00	83 00	
British Columbia	251,559 25	295,077 75	43,518 50	
Manitoba	44,537 60	51,396 50	6,858 90	
Northwest Territories	321,391 67	288,280 07		33,111 60

Throughout the Dominion as compared with the preceding year, there has been a net decrease of 1,528 acres in the area cultivated, and of 60,456 in the number of bushels of grain and roots harvested, but notwithstanding an aggregate increase in value of products amounting to $4,162.70.

NATURAL RESOURCES.

Nature on the whole contributed with more than its accustomed liberality towards the maintenance of the Indians, and there has been a net increase over the previous year in the amount derived from fishing of $81,399.75, and from hunting of $60,743.72, making the very considerable aggregate addition of $142,143.47.

The figures hereunder will show that in so far as concerns fishing the increase has been shared in proportionately by all the provinces, with the exception of Ontario, where there has been somewhat of a falling off, while that derived from hunting has been less equally distributed, the returns in Ontario and Quebec having considerably reduced the aggregate of the augmented contributions from the other provinces.

FISHING.

Provinces.	1903.	1904.	Increase.	Decrease.
	$ cts.	$ cts.	$ cts.	$ cts.
Ontario	75,414 50	68,617 00	.....	6,797 50
Quebec	3.479 75	4,269 00	789 25	.....
New Brunswick	8,680 00	8,805 00	125 00	.....
Nova Scotia	3,195 00	4,510 00	1,315 00	.....
Prince Edward Island	680 00	1,250 00	570 00	.....
British Columbia	297,030 00	353,698 00	56,668 00	.....
Manitoba	23,506 00	42,009 00	18,503 00	.....
Northwest Territories	25,368 00	35,595 00	10,227 00	.....
	.....	.....	88,197 25	6,797 50

HUNTING.

Provinces.	1903.	1904.	Increase.	Decrease.
	$ cts.	$ cts.	$ cts.	$ cts.
Ontario	115,145 93	90,591 50	.....	24,554 43
Quebec	87,275 10	67,708 50	.....	19,566 60
New Brunswick	7,725 00	8,000 00	275 00	.....
Nova Scotia	5,760 00	5,505 00	.....	255 00
Prince Edward Island	60 00	60 00	.....	.....
British Columbia	165,180 00	216,400 00	51,220 00	.....
Manitoba	61,950 00	74,188 00	12,238 00	.....
Northwest Territories	110,316 30	151,703 02	41,386 72	.....
	.....	.....	105,119 72	44,376 03

Of the Indians in Quebec who depend more or less exclusively upon hunting and trapping supplemented by some fishing, the majority are to be found along the lower St. Lawrence river.

It was pointed out last year that in consequence of one of the periodical migrations of the marten, their staple fur, these Indians had fared somewhat badly.

During the year now under review conditions were more normal, although fur was not plentiful, but the chief factor in the reduction of revenue from this source was the condition of the markets, prices which were good at first having afterwards dropped to a half or even a third, a depression attributed to the fact of a country which is one of the heaviest purchasers of fur being engaged in war. Fortunately deer were very plentiful, so that there was no lack of food.

In other parts of the province the increased opportunities for other remunerative employment have tended to divert from the pursuit of fur and game.

In British Columbia the Indians throughout depend to a considerable extent upon salmon for their food-supply, and numbers from certain localities further rely upon earning money by catching them for the canneries. The runs in the Skeena and Nass rivers were poor in the spring, and not much better later on. Moreover, the Indians refused to accept for their fish the price taken by the Japanese fishermen, and a num-

ber of them returned to their homes, while others went to the Fraser river, where they found conditions little if any better. Fortunately the home runs in the early fall upon which the Indians depend for securing their winter's supply were good, excepting in the Williams Lake agency, where for some unexplained cause streams that as a rule teem with fish remained unentered by them. Moreover, the Indians on the northwest coast who went to the Nass river in the spring for the oulachon fishery, had a very successful catch.

Those in the West Coast agency who accompany the sealing schooners to California and other coasts as hunters, have been gradually faring worse and worse, and last spring returned with little or nothing to show for a two months' absence. The experience of the hunters who remained on their own coast was a happy contrast, as the seals not only arrived early, and in numbers unprecedented for many preceding years, but also approached more closely to shore.

In Manitoba and the Northwest Territories the increased earnings from both fish and fur are attributable to the waters having become restocked with fish, and the multiplying of muskrats, as a consequence of a succession of wet seasons.

In addition to the two main natural resources afforded by fishing and hunting, there are various minor ones, such as the making of maple sugar and the gathering of wild rice and medicinal roots, also of wild fruits and berries, which form a by-no-means unimportant addition to the larder, and moreover command a ready market where there are adjoining settlements.

WAGES AND VARIOUS EARNINGS.

In no other way has the revenue so greatly expanded as from wages earned and various industries, the increase from the former having aggregated $191,736.39, and from the latter $36,500.14, a total aggregate increase of $228,236.44, distributed as shown hereunder.

WAGES EARNED.

Provinces.	1903.	1904.	Increase.	Decrease.
	$ cts.	$ cts.	$ cts.	$ cts.
Ontario	473,178 00	462,476 00		10,702 00
Quebec	267,186 20	377,091 00	109,904 80	
New Brunswick	43,000 00	49,550 00	6,550 00	
Nova Scotia	20,170 00	27,750 00	7,580 00	
Prince Edward Island	300 00	280 00		20 00
British Columbia	367,495 00	425,694 00	58,199 00	
Manitoba	30,564 00	38,875 00	8,311 00	
Northwest Territories	76,501 64	88,415 14	11,913 50	
			202,458 30	10,722 00

OTHER INDUSTRIES.

Provinces.	1903.	1904.	Increase.	Decrease.
	$ cts.	$ cts.	$ cts.	$ cts.
Ontario	88,661 48	93,956 65	5,295 17	
Quebec	93,798 00	104,023 00	10,225 00	
New Brunswick	19,275 00	18,575 00		700 00
Nova Scotia	21,526 00	20,320 00		1,206 00
Prince Edward Island	17,153 00	17,400 00	247 00	
British Columbia	191,681 00	227,210 00	35,529 00	
Manitoba	18,560 00	17,510 25		1,049 75
Northwest Territories	125,656 15	113,815 87		11,840 28
			51,296 17	14,796 03

It will be observed that Ontario alone has failed to share in the expansion from wages earned, although she has done so in that from general industries.

In all the provinces a preference is shown when choice offers, for occupation which gives more speedy returns and affords a less monotonous life than farming, and in the older provinces the tendency is, especially for the young people, to make for the towns and cities.

With regard to the first contact with civilization, nothing can take the place of agriculture as a means for effecting the necessary transformation of habits, of which fixity of residence is the fundamental one required for civilization, and at further stages of development it is rare to find Indians making such solid and permanent material progress as when engaged in farming.

On the other hand in so far as respects the ultimate fusion of the races, the mingling with other classes of the community and sharing in their occupations and interests are not without advantage.

The general increase from wages earned is of course mainly attributable to the impetus to all industries throughout the Dominion of recent years, which offers more opportunities for employment at advanced rates of remuneration.

In the neighbourhood of towns the bulk of the employment is in factories, while in the agricultural districts it naturally takes the direction of farm labour, and in the outlying districts is pretty well confined to work for the fishing and lumbering companies, for which kind of labour the Indians manifest a strong predilection.

In Quebec, and on a proportionately reduced scale in the eastern seaboard provinces, the Indians neglect agriculture for various manufactures, such as of snowshoes, mittens, moccasins, baskets, lacrosse sticks, as well as of other more distinctively Indian wares, such as bead, bark and other fancy work.

These industries which had been dwindling away have of recent years been reviving in response to a resuscitated market which continues to improve.

In Manitoba employment is mainly on the lakes and rivers and in the woods, as boatmen, fishers and axemen.

In the Northwest Territories there is a limited demand for the same class of labour, and a considerably greater call for farm labour, and in places a good deal is made by freighting and by the sale of hay and fire-wood.

The increase in wages earned in the territories during the year is largely referable to the demands of incomers during the initial stage of settlement.

In British Columbia the main sources of employment are in connection with the lumbering, mining, fruit-growing and fishing industries (particularly the salmon canneries), also in packing and freighting and as cowboys on the cattle ranches, of all of which the Indians manifest every desire to avail themselves as a means of self-support, and further evince characteristic enterprise in entering upon business ventures on their own account.

HOUSES.

The improvement taking place in the structure of dwellings has been referred to incidentally in connection with its effect upon general health, and it may be observed that the benefit extends to the moral as well as the physical condition of the residents, by making better provision for the separation of the sexes and the decencies of family life. Nor is this benefit limited to sexual morality, for improved residences tend to a general elevation of the whole tone, to increase of self-respect, to a stronger attachment to home life, and the development of a spirit of independence.

In the Northwest Territories the introduction of saw-mills into the agencies and in all of the younger provinces other increasing facilities for securing lumber have greatly contributed towards the improvement.

As to furniture, the substitution of cooking and heating stoves for the old open fireplace, the use of bedsteads, tables, chairs and sewing-machines, &c., &c., indicate a growing appreciation of the conveniences and comforts of civilization, and the attempts at adornment of the homes with such pictures and simple ornaments as can be picked up, and still more the not uncommon acquisition of musical instruments such as organs, and autoharps give evidence of a decided advance upon the standard of a bare utility.

EDUCATION.

With regard to education there has been no change during the year beyond the usual slight fluctuation in the enrolment and average attendance of pupils, and the opening of a few new schools.

The questions have been raised repeatedly as to whether the existing method of education by day, boarding and industrial school as at present distributed and conducted is the best that can be devised for the education of the Indian youth, and again as to whether the potentialities of these schools are being exhausted.

The many difficulties in the way of providing and inducing parents to accept for their children such educational advantages as may seem best suited for their several environments, their present requirements and future prospects, have been repeatedly pointed out.

Since, however, it is intended to go into these most important questions exhaustively at an early date, there would not appear to be anything to be gained by a further discussion of them now, but it may be added that valuable assistance towards the solution of the problem is anticipated from the various religious denominations whose experience, co-operation and interest in the work place them in the best possible position to render it.

The following table will show the number of each class in operation in the different provinces during the year:—

Provinces.	Day.	Boarding.	Industrial.
Ontario	71	1	5
Quebec	17	. .	. .
Nova Scotia	11	. .	. .
New Brunswick	6	. .	. .
Prince Edward Island	1	. .	. .
British Columbia	30	8	9
Manitoba	48	5	4
Northwest Territories (including Treaty No. 8)	33	32	6
Outside Treaty Limits	11	. .	. .
	228	46	24

It will be observed that as compared with the preceding year there has been an aggregate increase of six, composed of four day, one boarding and one industrial school.

Of these schools 44 are undenominational, 104 in connection with the Roman Catholic Church, 88 in connection with the Church of England, 46 in connection with the Methodist and 15 in connection with the Presbyterian Church, while one is conducted by the Salvation Army.

The total enrolment for the year was 9,785, of whom 5,081 were boys and 4,704 were girls, a decrease of 125 boys and an increase of 80 girls, or a net aggregate decrease of 45 pupils from the preceding year's enrolment.

There was a slight gain in the percentage of the average attendance, which was 61·40 of the enrolment.

It may be added that a good many children, not included in the foregoing numbers, attend the schools in the settlements adjoining their reserves.

The number of boys learning trades at industrial schools, in addition to farming—in which all the boys receive instruction—was 221.

MORALITY.

In judging of the Indians' morality, justice requires the exercise of caution in the selection of the standard for comparison, and in estimating the results of the various religious denominations labouring among them, due consideration must be given to the many difficulties which are encountered in the work.

No doubt the highest and only immutable standard of ethics is that of real Christianity, but the remembrance of the long course of preparation by which mankind was enabled to reach the standard attained, even under the most favourable conditions, should dictate the exercise of the utmost charity in attempting to judge people who have come comparatively recently into contact with them.

Among the difficulties to be contended against, particularly at the pioneer stage, not the least is the class of white men with whom they come into contact, and whom lack of discriminating power leads them to regard as the product rather than the failures of Christian civilization.

Again, the pagan Indian who at the beginning, if indeed he ever attains it, completely lacks the capacity to appreciate the theological distinctions and their attendant consequences between the various denominations, is called upon to make his selection, and possibly with some intuitive apprehension of the fruitlessness of a doctrine which exhorts the naked and destitute to be warmed and filled, while withholding the wherewithal, he decides upon the denomination which seems to offer the best prospects of material advantage.

To this material element is added that of his strong natural superstitution, and it is questionable whether despite the best efforts of the missionary, the pagan on the border-land between darkness and light, does more than exchange his superstitions, which at the most can only be productive of a negative form of morality.

However, the missionaries to the aborigines of this country are not peculiar with respect to the experience of such difficulties, and have to exercise patience in the faith of better things to come, and on the positive side of the matter it is pleasing to notice among Indian communities a kindliness of intercourse and mutual helpfulness, which is a nearer approach to Christian charity than is often to be found among others who enjoy greater advantages, but of which the extent and duration bear a distinct relation to the comparative simplicity or complexity of their social conditions.

In some directions class legislation, whether intentional or otherwise, produces as regards comparison a fictitious showing to the detriment of the Indians.

With regard to the marriage bond and other sexual relations, while the law with the laudable desire for the enforcement of nuptial obligations recognizes the validity of marriages contracted in accordance with tribal customs, in furtherance of the same object it refuses to recognize kindred divorces among them, but as the Indians are unable to appreciate such distinctions, it comes to pass that men and women are not infrequently to be found living on the reserves in relations which are condemned as illegal and immoral, although regarded by those immediately concerned as quite correct, and would in other communities be remediable by recourse to the divorce courts.

Over and above this it can not be denied that considerable looseness exists in the relations between the sexes, which is by no means confined to the younger provinces, or outlying bands in the older provinces, but on the whole the morality of the Indians, up to their light, is as good as that of their neighbours, and improvement is going on in this as in other directions.

To turn to another direction in which class legislation casts a deceptive shadow upon the relative conduct of the Indians, it may be observed that the use or even the abuse of intoxicants on the part of a member of any other class of the community attracts comparatively little attention as compared with the same thing on the part of an Indian. At the same time the contraband character of the traffic in intoxicants with Indians offers such prospects of gain as results in special temptations being thrust upon them, and it becomes quite impossible so long as liquor is manufactured and freely sold in surrounding communities to prevent its reaching to some extent those of their number who either go to look for it, or are without the necessary strength to resist the importunity of those who press it upon their acceptance.

The department, however, does what it can, under the circumstances, to keep the traffic within bounds, and in a great measure, owing to the good sense of the majority of the Indians themselves, the percentage who suffer is not a large one.

During the first quarter of the current fiscal year, for which returns are at hand, in the older provinces under direct and active supervision from headquarters, convictions to the number of 122 have been obtained, and fines ranging from $5 to $300, and aggregating $5,949, imposed, while in ten cases imprisonment for terms varying from 30 days to 6 months' duration have been inflicted.

Special activity has been exercised to guard against intoxicants reaching the Indians in the Northwest Territories, as a consequence of the influx of settlers ignorant of the law, and of the special danger of letting them have access to alcohol, and in British Columbia energetic steps have been taken in the same direction, more particularly in the neighbourhood of the canneries where the Indians congregate during the fishing season.

The effects of the crusade against the traffic with the hunting bands along the lower St. Lawrence referred to in last year's report, have so far proved lasting and most beneficial to the Indians in every direction.

Should the strong efforts now being made for the further restriction of the sale of intoxicants, particularly in the province of Ontario, prove successful, the prevention of the traffic with Indians will be greatly facilitated, not only by the removal of direct temptation, but by the modification or destruction of the appearance of class legislation with respect to the Indians, which largely alienates public sympathy from the enforcement of the law.

LANDS.

Of surrendered, surveyed Indian lands during the past fiscal year 67,965·38 acres were sold and realized the sum of $62,942.82. During the same period 321 patents were issued and recorded; 43 returns of patents were forwarded to the different registrars of counties and districts, and four returns were made to the Provincial Secretary of Ontario of lands patented within the province.

The town plot of Fisher, in the township of Fisher, in the district of Algoma, was subdivided into lots and placed in the hands of the local agent at Sault Ste. Marie, for sale at upset prices fixed by the department.

In April last, the Indians of the Nipissing band surrendered 10 square miles of their reserve at the falls on the Sturgeon river, which were sold to the Occidental Syndicate, Limited, for $10,000.

In October, 1903, the Indians of the Rice, Mud and Scugog Lake bands surrendered islands Nos. 74 and 108 in Dummer township, and 2, 3 and 7 in Harvey township, to be disposed of for their benefit, and they were subsequently sold by public tender.

A portion of the Michel reserve, No. 132, situated west of Edmonton, containing about 7,800 acres, was surrendered by the Indians in July, 1903, to be sold for their benefit. Tenders were duly called for the quarter-sections comprised in the land surrendered, but out of the 53 quarter-sections for which tenders were called, only 12 quarter-sections were tendered for and disposed of.

In May last, the town plot of Maniwaki, in the county of Wright, Quebec, having been re-surveyed and subdivided, was placed in the local agent's hands for sale at fixed upset prices.

MINERALS.

During the year a number of applications were received for the baser minerals on lands in the Garden river and Batchawana bay districts.

The Indians of Manitoulin island, unceded, having surrendered oil and mining privileges in connection therewith, the department, on October 2, 1903, granted to André S. Poirier, of Shediac, the exclusive right to prospect for oil on the unceded portion of Manitoulin island from July 16, 1903, until November 1, 1906, subject to conditions specified in agreement.

LOCATION TICKETS.

Location tickets, granting title, under the provisions of the Indian Act, to individual Indians for land on reserves, were issued to the number of 188, and at the end of the fiscal year there were current 1,330 location tickets.

In July and August, 1903, location tickets to the number of 96 for the Port Simpson band, and 45 for the Metlakatla band were issued for lots in their town plots.

LEASES.

Leases to the number of 104 were issued to white men, at the request of the Indian locatees, and at the end of the fiscal year there were 1,199 such leases current.

Of timber licenses renewed and in force there are 23,—of unworked berths for which licenses have not been renewed there are 4, and of vacant berths 3.

SURVEYS.

Ontario.

The re-survey of the Moravian reserve, in the county of Kent, which was commenced two seasons ago, has been completed.

The survey and subdivision of the Walpole Island reserve, in the county of Kent, has been commenced.

All the limits of the Rama reserve, in the county of Ontario, have been re-established and posted.

The boundaries of the West Bay reserve, Manitoulin island, are being re-surveyed.

Quebec.

The southwest boundary of the Doncaster reserve, county of Montcalm, has been defined by survey and marked with stone monuments.

The Quarante Arpents reserve, county of Quebec, surrendered by the Indians to be sold for their benefit, has been surveyed and subdivided into lots for the purpose.

The portion of the eastern boundary of the Restigouche reserve, county of Bonaventure, between the reserve and the lands of the Messrs. Fraser, has been finally decided and marked with stone monuments.

The boundaries of the Pierreville reserve, county of Yamaska, which had become obliterated, and in some instances disputed, have been established by survey.

A tract of land for a reserve at Seven Islands, in the lower St. Lawrence, has been granted by the provincial government, and the same surveyed for the Indians of the locality.

The station ground of the Gatineau Valley Railway having been located in the southern part of the town plot of Maniwaki, county of Ottawa, the same which was previously blocked out has been re-arranged and surveyed into lots for sale.

Nova Scotia.

Forty acres of woodland, adjoining the Millbrook reserve, county of Colchester, were purchased and surveyed into lots for the Indians of the said reserve.

The boundaries of the Ship Harbour reserve, county of Halifax, were re-surveyed.

New Brunswick.

The disputed boundaries of lot A, in the Big Hole Tract reserve, county of Northumberland, were defined by survey.

The north part of the east boundary of the Tobique reserve, county of Victoria, has been re-surveyed.

A number of lots in the Red Bank reserve, county of Northumberland, occupied by squatters, have been surveyed.

British Columbia.

The following surveys were made in this province:—

Disputed boundaries of the Kapilano and the Cowichan reserves.

The Lach-kal-tsap townsite.

The subdivision of the Stony Point reserve, Nass river.

Manitoba and Northwest Territories.

Survey of addition to White Bear reserve, No. 70, Moose Mountain.
Levels for draining hay sloughs, White Bear reserve, No. 70, Moose Mountain.
Retracing survey (boundaries) Sarcee reserve, No. 145, Calgary.
Retracing survey (boundaries) Saddle Lake reserve, No. 125.
Retracing survey (boundaries) Frog Lake reserves, Nos. 121 and 122.
Re-adjusting survey Keheewin reserve, No. 123.
Re-adjusting survey La Corne reserve, No. 100.
Subdivision survey of portion of St. Peter's reserve, No. 1.
Survey and subdivision of the surrendered portion of the Michel reserve, No. 132.
Survey of the townsite of Kamsack, Coté reserve, No. 64.

Miscellaneous Surveys.

The following works were executed under the direction of the department:—

The construction of pavilions, wharfs and boat-landings on six islands in the "Thousand Islands," River St. Lawrence, reserved as public parks.

A wagon road across the Doncaster reserve, Que.; and improvements on a new road leading to the north end of the Restigouche reserve, in the same province.

In order to supply Walpole island with fresh water and for sanitary purposes, an extensive work of dredging is being executed on the island.

Measures are being taken to prevent the Bella Coola river, B.C., from overflowing its banks and damaging the reserve of the same name.

FINANCIAL.

At the close of the fiscal year the capital of the Indian Trust Fund, which at the end of the preceding year amounted to $4,408,912.57, had increased to $4,476,907.81.

The balance sheet of this fund will be found in Part II of this report.

The amount expended from the Consolidated Revenue Fund, voted by parliament for the purposes of the department, was $1,107,951.32.

On June 30 last, the balance to the credit of the Indian Savings Account, for the funding of the annuity money and earnings of pupils at industrial schools, together with collections from Indians for purchase of cattle and ranching expenses, was $36,494.23. Deposits and interest during the year aggregated $22,813.30, and withdrawals amounting to $21,645. 89 were made during the same period.

I have the honour to be, sir,
Your obedient servant,

FRANK PEDLEY,
Deputy Superintendent General of Indian Affairs.

REPORTS

OF

SUPERINTENDENTS AND AGENTS

PROVINCE OF ONTARIO,
CHIPPEWAS OF CHRISTIAN ISLAND,
PENETANGUISHENE, August 31, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report and statistical statement showing the condition and progress of the Indians under my supervision during the year ended June 30, 1904.

Reserve.—The reserve of this band is located on Christian island, situated at the scuthern end of Georgian bay, on the steamboat route from Collingwood to Parry Sound and from Collingwood to Midland and Penetanguishene.

Tribe or Nation.—These Indians are called the Chippewas of 'Beausoleil,' because they formerly resided on Beausoleil island.

Vital Statistics.—The population of this band is 233, there having been 6 births and 4 deaths, an increase of 2 over last year.

Health.—The health of the band has been good, no contagious diseases of any kind having been prevalent during the year. The houses are clean and comfortable, sanitary regulations being strictly observed.

Occupations.—Farming is the chief occupation of the Indians of this reserve. During the winter they take out wood for steamers, in summer the young men act as guides to tourists. Large quantities of fish are caught in the bay close to the reserve. The women make baskets and fancy-work, so that constant employment tends to make them very comfortable.

Stock.—The Indians have good cattle; and abundance of excellent grass and water keep them in good condition. The importation of a thoroughbred bull some few years ago has proved very satisfactory.

Education.—The school on this reserve is taught by the Rev. Mr. Evans, under whose efficient supervision the children make good progress.

Religion.—There are two churches on the reserve, the Methodist and Roman Catholic. Both are well attended on each Sabbath, services being held twice on this day. The Methodists are at present erecting a new brick church and the Roman Catholics are contemplating extensive repairs to the present church. These two practically new up-to-date buildings will be a very attractive ornament to the island and display a progressive spirit amongst these people.

Temperance and Morality.—The Indians as a rule are temperate and in this respect are improving. The chief and councillors, particularly, being temperate and

very exemplary men, which tends to show that these Indians appreciate men of good habits by electing them to office.

I have, &c.,

CHAS. McGIBBON,

Indian Agent.

PROVINCE OF ONTARIO,
CHIPPEWAS OF GEORGINA AND SNAKE ISLAND,
VACHELL, July 3, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the year ended June 30, 1904.

Reserve.—This reserve is situated in the southern waters of Lake Simcoe, Georgina island being five miles from Jackson's Point, a popular summer resort, where large numbers spend the summer months each year. Snake island is a part of the reserve and is twelve miles further west and one mile from Morton Park, another summer resort. The reserve contains 3,497 acres and is a good clay soil and raises good grain and roots, but has numerous swales running through it.

Tribe.—These Indians are nearly all Chippewas and are thoroughly civilized.

Vital Statistics.—This band numbers 114, 4 less than my last year's report ; consisting of 34 men, 35 women, 26 boys and 19 girls ; there were 2 births and 7 deaths and 1 woman joined the band through marriage during the year.

Health and Sanitation.—The health of the band has been rather poor during the past year. There were two deaths from consumption, which still carries off some each year, notwithstanding that the Indians guard against it all they can by observing all ordinary precautions such as keeping their houses and yards clean and dressing warmly in winter.

Occupations.—Farming is the chief occupation of most of the Indians. Some of them work out part of the time. Some go to the lumber camps ; a few work for farmers, some sell fish and others take campers out fishing. Some sell a little fur such as mink and muskrat. The women make baskets and fancy-work of quills, birch-bark roots and peel bark which they sell for medicine.

Buildings.—The buildings are all of wood. There are fourteen frame houses and three frame barns ; the rest are built of logs. There is one frame barn being built this summer and some repairing is also being done to houses.

Stock and Implements.—The stock is fair. There are some very good horses, but not enough of them. There are also some fine cows and a few sheep. All the stock is well cared for ; the implements are also very good. There is a horse-power threshing machine in good repair and sufficient wagons, sleighs, ploughs, harrows, buggies, and cutters for the needs of the Indians.

Education.—There is a good school on Georgina island taught by Mr. H. L. Tweed, who attends to the moral training as well as to the educational interests of his pupils, and does his best to improve the habits and morals of the whole band.

Religion.—There is a Methodist church on the reserve and most of the Indians are members ; there is at least one service held each Sabbath. The attendance is good and the conduct of the Indians while at church is excellent. The church is kept scrupulously clean and in splendid repair.

Characteristics and Progress.—Most of the Indians are fairly industrious and are making fair progress. Those who stay on the reserve and farm get along best. A few of them will not work till they are forced to, and always seem satisfied if they have enough for present needs. A number of the Indians provide for the future like white men ; among this class I might mention Alfred McCue, Thomas Port, James Charles, Thomas Charles, G. H. Charles, Charles Bigcanoe, Daniel Bigcanoe and John E. Bigcanoe, who are especially industrious and making good progress.

Temperance and Morality.—The great majority of the Indians of this band never drink liquor nor use bad language, but I cannot say as much for all of them. There is one old man and five or six young men who will drink every time they get a chance. I do not think any of the women drink, and they are, as a rule, more industrious than the men.

General Remarks.—Nearly all the Indians can read and write fairly well ; all of them can speak English pretty well, but use the Indian language in all their public meetings. In council they discuss all questions fully before deciding them. Such meetings are always orderly and quiet.

I have, &c.,

JOHN YATES,
Indian Agent.

PROVINCE OF ONTARIO,
CHIPPEWAS OF NAWASH,
CAPE CROKER, July 8, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the year ended June 30, 1904.

Reserve.—There is only one reserve in the agency. It is situated in the extreme northeast portion of the township of Albemarle, in the county of Bruce. This reserve contains nearly 16,000 acres, about sixty per cent of which is good for cultivation and pasture.

Tribe.—These Indians are nearly all Chippewas.

Vital Statistics.—This band numbers 386 on the pay-list, and about 25 non-treaty Indians, who reside on the reserve; on the pay-list are 113 men, 126 women, 89 boys and 58 girls. There have been 9 births and 8 deaths and 5 women came in by marriage, making an increase of 6 as compared with the census of last year.

Health and Sanitation.—The health of the Indians has been very good during the past year. There is a marked improvement in this respect. All sanitary measures are carefully attended to, the dwellings whitewashed and in most cases kept neat and clean and premises in good order, being kept free from rubbish and other refuse matter by burning it. In their personal appearance the Indians are well dressed, neat and clean.

Occupations.—In agricultural pursuits this tribe is not doing as well as formerly. Twenty-five families are working their holdings fairly well, they have nearly all the farming implements required. On account of the high wages and good times, there is a tendency for part of the families to work out, a number of the young men work in saw-mills, loading vessels and rafting. Some work for white farmers, and in winter in the lumber woods; a number of the women make baskets, pick berries and gather ginseng-root for sale.

There is a saw-mill and shingle-mill on the reserve, manufacturing out of the dead and waste timber, and this year some green timber. The Indians derive a considerable revenue from this industry. They have a good fishing reserve and annually catch about $4,000 worth of fish.

Stock.—They have a number of very good horses, but the price of horses being high, they are induced to sell a number of them each year. The cattle are increasing in numbers, ten more cows have been purchased during the past year. The Indians raise a large number of hogs, and the sheep are increasing.

Education.—There are three day schools on this reserve, all of which are making very good progress, the school-buildings are in good order and well equipped, being supplied with good teachers.

Religion.—The Indians attend divine service well, they have two churches. The Methodists, two hundred and forty in number, have a large stone church and a resident missionary in the person of the Rev. Mr. Nelson, recently from Norway House in the Northwest ; he understands the Indian work; while the Roman Catholics, numbering about one hundred and twenty-eight, have a frame church. They are agitating for the building of a new brick church of larger size ; they also have a resident missionary. The Rev. Father Artus has been very energetic in his good work among the Indians, he goes to a larger field and is succeeded by the Rev. Father Catto from Sault Ste. Marie. There are about fifteen members of the band leaning to the English Church, but they have no church-building.

Temperance and Morality.—I am pleased to report that a large majority of this band are strictly temperate and have temperance societies, there are still a few noted characters that on days of large gatherings outside get unscrupulous white men to procure them whisky. I have trouble with those, but on the whole there continues to be a decided improvement in this respect.

The Indians continue to improve in morality, but when an officer of the department comes up from Ottawa, they tell everything on one another. This makes it appear worse than it would be with an equal number of white people.

Characteristics and Progress.—The industrious Indians are getting along well and making a good living and their progress on the whole is fair. They had a good crop of hay this year and an abundance of pasture. Their grain crop is below the average, potatoes and roots are looking well. There is a marked improvement in their buildings and fences ; two good stone houses have been recently built, the Indians doing most of the work themselves. They have good public buildings and they have all been put under good repair this summer. The Nawash Indian fall agricultural show has been held annually for the past seven years and is the means of creating a good deal of healthy rivalry in competition with each other in the products of their labour. It is the only big day they all participate in for outside sport and amusement on their own reserve.

I have, &c.,

JOHN McIVER,

Indian Agent.

PROVINCE OF ONTARIO,

CHIPPEWAS OF RAMA,

ATHERLEY, August 22, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit the following report together with statistical statement, showing the condition and progress of the Indians of this agency, for the year ended June 30, last.

Reserve.—The Rama reserve is situated in the northern extremity of the county of Ontario, on the eastern shore of Lake Couchiching. The land is high and a fairly good clay loam.

Tribe.—These Indians are of the Chippewa tribe.

Vital Statistics.—The population is 231, composed of 50 men, 64 women, 60 boys and 67 girls, a decrease of 3 since my last annual report.

Health and Sanitation.—In general the health of the Indians has been good. In spite of the severe cold of last winter, no epidemic prevailed among them. Consumption is the cause of death in the majority of cases. All sanitary precautions are strictly observed and the houses are neat and clean.

Resources and Occupations.—A large majority of the Indians make a good livelihood from agricultural pursuits, others hunt and trap in the fall and spring, gather and dry bark and wood for fancy-work in the winter, and guide American tourists during the summer months. Steady employment can be had at the Standard Chemical Works at Longford. The women find ready sale for their baskets and fancy-work in Orillia.

Stock and Farm Implements.—Most of the buildings are frame and are kept in very good repair.

There are some good horses on the reserve and the other stock is of a fair class.

Some of the Indians are fairly well supplied with farm implements.

Education.—There is one school on the reserve, which is ably taught by the Rev. J. Laurence. Those who attend regularly make good progress.

Religion.—These Indians are mostly Methodists. They have a beautiful stone church equipped in modern style. Service is held each Sabbath, morning and evening, by their pastor, the Rev. J. Laurence.

Characteristics and Progress.—Most of the Indians are industrious and law-abiding. But, although they earn a good deal, they are in the majority of cases always poor ; this is due to their lack of economy and to their improvidence.

Temperance and Morality.—I am pleased to report that a large majority of this band are strictly temperate, and moral in their habits.

I have, &c.,

D. J. McPHEE,

Indian Agent.

PROVINCE OF ONTARIO,
CHIPPEWAS OF SARNIA,
SARNIA, September 8, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report with statistical statement showing the condition and progress of the Indians in my agency for the year ended June 30, last.

Reserves.—There are three reserves belonging to this agency, Sarnia reserve, bordering on the River St. Clair for a distance of six miles, and Kettle Point and Stony Point reserves, situated on Lake Huron in Lambton county. The combined area of the three reserves is about 9,700 acres.

Vital Statistics.—The population of the three is 450, consisting of 119 men, 123 women, and 208 young people and children; an increase of 4.

Health.—The health of these Indians has been fairly good this year. No epidemic

has broken out among them. The deaths from consumption have been fewer this year than last. Sanitary measures have been fairly well observed.

Education.—There is a school on each of the three reserves, only two of which are open, that on Sarnia reserve and that on Kettle Point reserve. The teachers are Miss Alice Matthews, and Miss Maud Erb, respectively. The attendance is not very good; the parents seem to fail to see the necessity of making their children attend school.

Religion.—There are two churches on Sarnia reserve—a Methodist and an Anglican—in which services are held regularly; also a church on each of the other two reserves, but the church at Stony Point has been closed for some time, service being held at Kettle Point regularly.

The Indians attend these services fairly well.

Characteristics and Progress.—These Indians, as a rule, are quiet and law-abiding. The progress in the way of farming has not been very great these last few years, owing to the fact that so many of the men work at the oil refinery, and at the docks at Sarnia. As they can make good wages at this work, they neglect the farming to do so.

Temperance and Morality.—Some of the Indians are inclined to drunkenness; otherwise they live fairly moral lives.

I have, &c.,

A. ENGLISH,
Indian Agent.

PROVINCE OF ONTARIO,
CHIPPEWAS, MUNSEES AND ONEIDAS OF THE THAMES,
DELAWARE, July 25, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report concerning the three bands included in this agency for the year ended June 30, 1904.

ONEIDAS OF THE THAMES.

Reserve.—The Oneida reserve is situated in the township of Delaware, Middlesex county. It contains 5,271 acres of choice farming land.

Tribe.—These Indians are a branch of the Oneida tribe, one of the confederacy known as the Six Nations.

Vital Statistics.—The total population of this band is 770, consisting of 268 men, 202 women and 300 children. There were during the year 16 births and 18 deaths.

Health and Sanitation.—The health of these Indians has been good during the year. No epidemic broke out. Consumption is the most prevalent disease.

Occupations.—The principal occupation is day labour. There are a few good farmers. They have very good vegetable gardens. They earn a large amount of money from pulling flax, berry-picking, cutting wood among the whites and from employment in connection with canning factories. A good deal of money is also realized from basket-making and mat-making.

Buildings, Stock and Farm Implements.—The dwelling-houses are principally small frame or log buildings. These Indians do not raise much stock, but what they have is of the average breeding. Those who farm are fairly well supplied with farm implements.

Education.—There are two day schools on this reserve. The attendance has been fair and the progress made by the children during the year has been very satisfactory.

Religion.—There are four churches upon this reserve—two Methodist, one Anglican and one Baptist. The Indians take a lively interest in religious affairs. The missionaries are doing excellent work.

Characteristics and Progress.—Generally speaking, the Oneida Indians are industrious and law-abiding. There are a few members of the band who are progressing very well, but as a whole, their progress is slow.

Temperance and Morality.—It is to be regretted that some of the Indians occasionally use intoxicating liquors, and the marriage law is sometimes not observed as well as it ought to be.

CHIPPEWAS OF THE THAMES.

Reserve.—This band occupies a part of the Caradoc reserve, comprising about 8,702 acres, which for the most part is a beautiful, undulating, fertile tract of country.

Tribe.—These Indians belong to the Chippewa tribe.

Vital Statistics.—The total population of this band is 484, consisting of 149 men, 137 women and 198 children. There were during the year 20 births and 13 deaths ; 5 women entered the band by marriage and 1 left.

Health and Sanitation.—Sanitary precautions have been fairly well observed. No epidemic broke out during the year. Consumption is the most prevalent disease.

Occupations.—The occupations of this band are principally day-labouring and farming. A good deal of money is earned by these Indians from pulling flax among the whites and from employment in connection with canning factories.

Buildings and Stock.—The barns and stables, though generally small, are in fairly good repair. The houses are principally small log or frame buildings. They do not raise much stock. Their horses are fair.

Education.—There are three day schools on the reserve. The schools are well equipped. Owing to the very severe winter, the attendance has been smaller than usual.

Religion.—These Indians take a lively interest in religion. The church services are well attended. A little more than half the population adheres to the Methodist Church and the remainder to the Church of England.

Characteristics and Progress.—These Indians are usually law-abiding and fairly industrious. They are making little progress.

Temperance and Morality.—These Indians are usually temperate. The marriage law, I regret to say, is not observed as well as it ought to be.

MUNSEES OF THE THAMES.

Reserve.—This band occupies 2,098 acres, a portion of the Caradoc reserve.

Tribe.—These Indians belong to the Munsee tribe ; the only band of this tribe residing in Canada.

Vital Statistics.—The total population of the band is 122, consisting of 43 men, 29 women and 50 children. There were during the year 7 births and 3 deaths and 1 woman married out of the band.

Health and Sanitation.—The health of these Indians has been fairly good. No epidemic broke out during the year. Sanitary measures have been fairly well observed.

Occupations.—The occupations of this band are principally day-labouring and farming.

Buildings, Stock and Farm Implements.—The buildings are not as good as could be desired. They do not raise much stock. Those who farm are fairly well supplied with farm implements.

Education.—There is one day school on this reserve. The attendance was small during the winter months owing to the severity of the weather. The children have made some progress in their studies.

Religion.—There are two churches on the reserve—one Methodist and one Anglican. Services are held in these regularly and are well attended.

Characteristics and Progress.—These Indians may be considered as fairly industrious. Their progress is slow.

Temperance and Morality.—These Indians are generally temperate and fairly moral.

I have, &c.,

S. SUTHERLAND,

Indian Agent.

PROVINCE OF ONTARIO,
GOLDEN LAKE AGENCY,
KILLALOE STATION, July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Reserve.—This reserve is situated on the southern end of Golden lake, Renfrew county.

Tribe.—These Indians belong to the Algonquin tribe.

Vital Statistics.—During the year there has been an increase of 1 in the band under my care; there were 2 births and 1 death, leaving the population of this band 97.

Health and Sanitation.—The health of the Indians on the reserve has been very good. Their houses are clean and compare favourably with those of any other class in this respect.

Occupations.—The principal occupation of these Indians is working in the shanties in winter and on the drives in the spring. Some of them are taking more interest in farming lately, and I think that after a while, most of them will have to farm, as game is getting scarce.

Education.—The children are learning fairly well under the management of Miss Casey, who is a splendid teacher.

Religion.—The Indians on this reserve are all Roman Catholics.

Temperance.—I cannot say these Indians are all temperate, still by watching them pretty well, I think they are no worse than at last report.

I have, &c.,

MARTIN MULLEN,

Indian Agent.

PROVINCE OF ONTARIO,
GORE BAY AGENCY,
GORE BAY, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report concerning the Indians of my agency for the year ended June 30, 1904.

COCKBURN ISLAND BAND.

Reserve.—This reserve is situated on the north side of Cockburn island, which lies immediately west of Manitoulin island. It has an area of about one thousand two hundred and fifty acres.

Tribe.—These Indians belong to the Ojibbewa and Ottawa tribes.

Population.—Fifty-three is the population of the band.

Health and Sanitation.—The health of the band is generally good, no epidemic having made any depredations on the reserve, but there were two deaths from pneumonia in a family that had left to have their children educated at Sheshegwaning. The sanitary regulations are observed and appreciated.

Occupations.—Forest, farm and stream are the resources of these Indians. They farm on a small scale and have very good garden and root crops. Their principal occupations are working in the lumber camps and making ties and posts in the winter and loading boats and peeling ties and posts in the summer.

Buildings, Stock and Farm Implements.—Their buildings are neat, clean and comfortable, and fairly well furnished. Their construction shows considerable skill and adaptability to requirements.

They have few cattle and horses, in fact little stock of any kind ; but what implements and rolling stock they buy are good.

Education.—There is no school on this reserve.

Religion.—These Indians belong to the Roman Catholic faith and have a church in which they worship under the guidance of the visiting missionary. They appear to take much interest in religious matters, and seem to be a very intelligent band, appreciating the teachings of the missionaries.

Characteristics and Progress.—These Indians are sober and industrious and make a good living.

Temperance and Morality.—The absence of liquor on the island has given these Indians a chance to be exceptionally temperate, and their isolation has kept them in their primitive state of morality, which is above the average.

General Remarks.—These Indians are industrious, sober and moral, adapting themselves more and more to the ways of the white man, and are inclining more to agricultural pursuits and manufacture of timber.

WEST BAY BAND.

Reserve.—This reserve lies in the township of Billings, at the head of Honora bay, Manitoulin island. The soil is sandy and clay loam, producing good crops ; it is timbered with hardwood, with patches of cedar and soft woods, and comprises in all thirteen square miles within its limits.

Tribe.—The Indians belong to the Ojibbewas and Ottawas of Manitoulin island.

Population.—The population of this band is 332, an increase of 7 in the year.

Health and Sanitation.—Sanitary measures are being fairly well carried out; the houses are neat and clean and whitewashed outside and in.

Several deaths occurred on the reserve from old age and consumption and though pneumonia and grippe were epidemic, owing to the medical precautions of Dr. Crauthers and the good nursing and advice of Miss A. Peacock, the teacher, very little harm was done.

Resources and Occupations.—The chief occupation of these Indians is farming, in which they are making good progress. They are quick to see the benefit of good seeds and buy from the best farmers in Billings and Carnarvon townships. They also work in the lumber camps in winter and load vessels and peel ties and posts in summer. Sugar-making, berry-picking and fancy wares are also sources of revenue.

Buildings, Stock and Farm Implements.—The buildings are mostly constructed of logs. Their dwellings and outbuildings are neat and comfortable, many of the houses being well furnished and comparing favourably with the average settler's both as to cleanliness and interior fittings.

Their stock of cattle and horses is increasing both in number and quality, and some implements are in use on the land, in which they are making good progress as farmers.

Education.—A fine new school has been erected in the village of West Bay and many of the pupils read and write well both in English and Indian. In addition to the regular school courses, sewing and the making of all kinds of clothing are taught.

Religion.—These Indians are Roman Catholics. They have a fine church on the reserve and a resident missionary from Wikwemikong. They are very devout and are particularly attentive to the missionary's teachings.

Characteristics and Progress.—These Indians are industrious and law-abiding and are copying the white settlers in many respects and are doing away with the old Indian ways of living.

Temperance and Morality.—Along the lines of temperance and morality there is an improvement and few complaints are made in these respects.

General Remarks.—This band is progressive, following the lead of the white agriculturist they are improving their lands and are taking a great deal of interest in repairing their roads. They are well dressed and drive good vehicles and horses.

OBIDGEWONG BAND.

This band consists of only six persons. Their reserve is located on the west shore of Lake Wolseley, Manitoulin island. The area is about four hundred acres. Some of it is exceptionally well timbered with hardwood.

The members of this band depend largely on the soil for maintenance. They are good bushmen and in the winter-time make ties and posts and in summer earn quite a sum peeling posts and ties and loading vessels.

SHESHEGWANING BAND.

Reserve.—This reserve is situated in the northeast part of the township of Robinson, Manitoulin island. Its area is about 5,000 acres, fairly well timbered with hardwood, cedar, pine and spruce.

Tribe.—These Indians are another division of the Ojibbewas and Ottawas of Manitoulin island.

Vital Statistics.—This band numbers 160. There were 4 births and 2 women married into the band; and 10 deaths and 1 removal, making a decrease of 5.

Health and Sanitation.—The health of this band for the past year has been poor. Pneumonia and grippe were rampant and had it not been for precautions taken and the timely assistance of the teacher, Miss Duhamel, who distributed medicines to all,

grave results would have followed. The sanitary precautions are well carried out. Their houses are clean and neat, and their clothing is well made and suitable for their work.

Occupations.—Farming and gardening are the chief resources. Lumbering, making ties and posts in winter and loading vessels and peeling posts in summer are also sources of revenue.

Farming is the chief occupation of the band. Some of the Indians farm quite extensively, cultivating the land and raising stock. Others are employed in the camps and loading vessels.

Buildings, Stock and Implements.—Their buildings are mostly of logs hewed outside and in and whitewashed. They are kept clean and neat, some being well furnished with musical instruments, sewing-machines and other luxuries.

Their stock is increasing and is well cared for. Cattle, horses and pigs are numerous. There are several buggies and democrats and heavy wagons and sleighs; and some good farm implements were purchased last year, including a threshing-machine.

Education.—The school is well attended. Good work is being done not only in teaching the usual courses, but practical housework and the cutting out and manufacture of all clothing and garments are taught to the young girls and some of the work shows unusual skill.

Religion.—These Indians are all adherents of the Roman Catholic Church. The church is a very good structure, well attended, and the services are conducted by missionaries from Wikwemikong.

Characteristics and Progress.—Those of the band who are farmers are doing well, but need more cleared lands. Their children are the best educated and appear to have more inclination to steady pursuits.

Temperance and Morality.—As a whole the band is fairly temperate; one or two families have been rather unsettled, but appear to be improving.

General Remarks.—Some of the Indians of this band are good farmers, the Sampsons and Nigonnewenahs have erected good houses on their farms, where they reside permanently. By thrift and industry these Indians keep themselves well supplied with money.

I have, &c.,

ROBERT THORBURN,
Indian Agent.

PROVINCE OF ONTARIO,
MANITOWANING AGENCY,
MANITOWANING, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report concerning the Indians of this agency for the year ended June 30, 1904.

WHITEFISH RIVER BAND.

Reserve.—The reserve of this band is situated near the mouth of the Whitefish river on the north shore of the Georgian bay. It contains an area of about 10,600 acres.

Tribe.— These Indians belong to the Ojibbewa tribe.

Vital Statistics.—This band has a population of 95, consisting of 20 men, 22 women and 53 children. During the year there were 3 births and 1 woman joined the band by marriage, and there were 3 deaths, making a total increase in the number of persons comprising this band of 1 for the year.

Health and Sanitation.—The general health of the band during the past year has been good. All necessary precautions have been observed in respect to cleaning and whitewashing their buildings.

Resources and Occupations.—A large portion of the land on this reserve is suitable for agriculture ; the remainder is woodland. The occupations engaged in by these Indians are farming, lumbering, hunting, berry-picking, fishing, basket-making and sugar-making.

Buildings, Stock and Farm Implements.—Their buildings are of log and frame construction and are kept in a fair state of repair. What stock they have is fairly well cared for, and these Indians have all the farm implements they require.

Education.—There is a day school on the reserve, which is attended fairly well by the children who live on the reserve.

Religion.—These Indians belong to the Anglican and Roman Catholic Churches.

Characteristics and Progress.—These Indians are fairly industrious, and easily obtain employment at good wages. They are law-abiding and are making fair progress.

Temperance and Morality.—They are fairly temperate and up to the standard in morality.

POINT GRONDIN BAND.

Reserve.—This reserve is located east of Collins inlet, on the north shore of Georgian bay.

Tribe.—These Indians are Ojibbewas.

Vital Statistics.—The population of this band is 51, consisting of 13 men, 18 women and 20 children. During the year there were 2 births and 1 woman joined the band by marriage, there were 8 deaths, making a total decrease of 5 in this band for the year.

Health and Sanitation.—The health of these Indians for the past year has been very good and the sanitary condition of their dwellings is satisfactory.

Resources and Occupations.—The resources of this reserve are timber, agriculture and fishing. The Indians farm on a small scale, fish, hunt, pick berries in the summer and work for the lumber firms in winter.

Buildings, Stock and Farm Implements.—They have comfortable log dwellings, have very litle stock and few farm implements.

Education.—They have no school on this reserve ; the children attend school at Wikwemikong.

Religion.—These Indians are Roman Catholics, and are spiritually ministered to by visiting missionaries from Wikwemikong.

Characteristics and Progress.—As a rule these Indians are very industrious, but they do not devote as much attention to agricultural pursuits as is desirable.

Temperance and Morality.—Temperance is very well observed, and the morality of these Indians is excellent.

WHITEFISH LAKE BAND.

Reserve.—The reserve of this band is situated about twelve miles from Sudbury, on the Algoma branch of the Canadian Pacific railway, where there is a station called Naughton. This reserve has an area of 43,755 acres.

Tribe.—These Indians are of the Ojibbewa tribe.

Vital Statistics.—This band has a population of 157, consisting of 38 men, 43 women and 76 children. During the year there were 7 births and 8 deaths, making a decrease of 1 in the population of this band for the year.

Health and Sanitation.—The health of these Indians for the past year has been above the average for this reserve, and they are all in very good health at present.

Resources and Occupations.—The resources of these Indians are gardening and hunting. They plant small gardens, fish, hunt, act as guides to prospectors and work in the lumber camps.

Buildings, Stock and Farm Implements.—Nearly all their buildings are constructed of logs. They have very little stock and but few farm implements.

Education.—They have two schools on the reserve, one at Naughton and the other at the village, a distance of about four miles from Naughton. Both schools are fairly well conducted, but the attendance is small, owing to the absence of a great number of the Indians who devote their whole time to hunting.

Religion.—These Indians belong to the Methodist and Roman Catholic Churches.

Characteristics and Progress.—They are fairly industrious and intelligent, but take very little interest in anything but hunting.

Temperance and Morality.—These Indians are fairly temperate and are moral in other ways.

TAHGAIWININI BAND.

Reserve.—These Indians have a reserve at Wahnipitae on the north shore of Georgian bay, but nearly all of the band reside on the unceded portion of Manitoulin island, at or near Wikwemikong.

Tribe.—These Indians belong to the Ojibbewa tribe.

Vital Statistics.—This band has a population of 194, consisting of 40 men, 51 women and 103 children. During the year there were 4 births, and 1 woman joined the band by marriage, there were 5 deaths and 3 women left the band by marriage, making a total decrease of 3 in this band for the year.

Health and Sanitation.—The Indians of this band are, generally speaking, a healthy lot. During the past year there were no epidemics. Their premises have been thoroughly renovated and their dwellings and outbuildings whitewashed with lime.

Resources and Occupations.—The greater part of this reserve is woodland. The timber on it has been sold under license and a good return secured to the Indians by the department. General farming, lumbering, fishing, berry-picking, bark work and basket-making are the chief pursuits of this band.

Buildings, Stock and Farm Implements.—The buildings are mostly of logs. Their stock is of the average quality and very well cared for. They have an ample supply of farm implements for their requirements.

Education.—The children of this band attend school at Wikwemikong.

Religion.—These Indians are all Roman Catholics.

Characteristics and Progress.—These Indians are industrious, law-abiding and are making good progress in farming.

Temperance and Morality.—In these respects their conduct leaves nothing to be desired.

MAGANETTAWAN BAND.

The members of this band who reside within this agency number 56. They live mostly at West Bay, on Manitoulin island, where they successfully farm and garden. In winter they find employment in the lumber camps. This reserve together with the affairs of its Indians, is under the control of the Parry Sound superintendency.

SPANISH RIVER BAND, DIVISION NO. 3.

The members of this band number 342. They all reside on the unceded portion of Manitoulin island, where they successfully farm and garden. Their general measure of advancement is identical with that of the Indians of the unceded portion of Manitoulin island, with whom they are included in the agricultural and industrial statistics.

SUCKER LAKE BAND.

Reserve.—The reserve of these Indians is situated in the fourth concession of the township of Assiginack, Manitoulin island. The area of the reserve is 599 acres.

Tribe.—These Indians belong to the Ojibbewa and Ottawa tribes.

Vital Statistics.—The population of this reserve is 13, consisting of 4 men, 7 women and 2 children. During the year there was 1 death, making a decrease of 1 in this band for the year.

Health and Sanitation.—The health of these Indians for the past year has been good, and sanitary precautions are encouraged in every respect.

Occupations.—Farming is the only occupation engaged in by these Indians.

Buildings, Stock and Farm Implements.—Their buildings are in good condition, and their live stock and farm implements sufficiently plentiful for their requirements.

Education.—There is no school on this reserve and there are no children in this band of school age.

Religion.—These Indians are Roman Catholics.

Characteristics and Progress.—They are both steady and industrious, and are getting along well.

Temperance and Morality.—Their character in these respects is altogether satisfactory.

SUCKER CREEK BAND.

Reserve.—The reserve of these Indians is situated in the northern part of the township of Howland, about four miles from the thriving town of Little Current. It has an area of 1,665 acres.

Tribe.—The Indians of this band belong to the Ojibbewa and Ottawa tribes.

Vital Statistics.—This band has a population of 99, consisting of 32 men, 30 women, and 37 children. During the year there was 1 birth, and there were 3 deaths, which makes a decrease of 2 in the number comprising this band for the year.

Health and Sanitation.—The health of these Indians for the past year has been fair and all their dwellings have been thoroughly cleaned and whitewashed.

Resources and Occupations.—Good farming land, that is unsurpassed, is the main resources of this reserve. Their principal occupation is farming; some of them engage in getting out timber and loading vessels.

Buildings, Stock and Farm Implements.—Most of these Indians have good dwelling-houses and barns and stables, which compare favourably with those of their white neighbours. Their stock is of a fair quality and well cared for. They have all kinds of modern farm implements.

Education.—The school on this reserve is under the supervision of the Church of England. It is competently conducted, and the children are making fair progress.

Religion.—The Indians of this band are adherents of the Church of England. They attend well the church on the reserve, which is in charge of the Church of England missionary at Sheguiandah.

Characteristics and Progress.—As a rule these Indians are industrious and law-abiding. Their chief is an intelligent and energetic man, who seems honestly and satisfactorily to discharge the duties devolving upon him.

Temperance and Morality.—During the year there has been very little inebriety, for which the Indians deserve praise, as their ready access to the largest town on the island, where there is no lack of unscrupulous men, ready by covert means to supply them with liquor, is a constant menace to the moral barriers behind which they are endeavouring to shield themselves.

SHEGUIANDAH BAND.

Reserve.—This reserve lies in the northwestern part of the township of Sheguiandah. It contains an area of 5,106 acres.

Tribe.—These Indians belong to the Ojibbewa and Ottawa tribes.

Vital Statistics.—The population of this reserve is 92, consisting of 27 men, 23 women and 42 children. During the year there was 1 birth, and there were 2 deaths, making a decrease of 1 in the population of this band for the year.

Health and Sanitation.—This band is, generally speaking, one of the healthiest in the agency, which fact is due in a great measure to the personal cleanliness of the Indians. They are quite amenable to sanitary laws.

Resources and Occupations.—The farming done on this reserve is of a general nature. Sugar-making, basket-making, berry-picking, are also engaged in at different seasons of the year, and the Indians also find employment in loading lumber barges at Little Current during the season of navigation.

Buildings, Stock and Farm Implements.—The buildings of these Indians are comfortable and fairly well furnished. Their stock is well cared for, and they have all the farm implements they require.

Education.—The progress of the children is satisfactory, and the average attendance good.

Religion.—The Indians of this band are nearly all adherents of the Church of England. They have a fine church on their reserve, which they attend well.

Characteristics and Progress.—On the whole these Indians may be said to be progressing. They are of average intelligence, and are a well-behaved and law-abiding people.

Temperance and Morality.—They are moral and temperate in their habits.

SOUTH BAY BAND.

Reserve.—This reserve is a portion of the unceded part of Manitoulin island, about twelve miles from Manitowaning.

Tribe.—These Indians belong to the Ojibbewa and Ottawa tribes.

Vital Statistics.—This band has a population of 67, consisting of 13 men, 22 women and 32 children. During the year 1 woman joined the band by marriage and there was 1 birth and 1 death, making an increase of 1 in the population of this band for the year.

Health and Sanitation.—The health of this band has been exceptionally good for the past year. Sanitary precautions have been observed.

Resources and Occupations.—The chief resource of this reserve is agriculture. The Indians farm and fish in the summer and take out timber in the winter.

Buildings, Stock and Farm Implements.—They mostly occupy log houses, which are neatly built and are kept clean and comfortable. Their stock is well cared for, and their supply of farm implements is ample for their requirements.

Education.—These Indians have a good day school on the reserve. It is competently conducted and the children are making very satisfactory progress.

Religion.—These Indians are all Roman Catholics and the visiting missionary holds regular services on the reserve.

Temperance and Morality.—In this band the principles of temperance and morality are fairly well observed.

INDIANS OF MANITOULIN ISLAND, UNCEDED.

Reserve.—This reserve comprises the eastern end of Manitoulin island, east of the township of Assiginack. It contains an area of 105,000 acres.

Tribe.—These Indians belong to the Ojibbewa and Ottawa tribes.

Vital Statistics.—They number about 731.

Health and Sanitation.—The health of these Indians, generally, for the past year has been good, no contagious disease, other than consumption, has visited the reserve. All necessary precautions have been taken in respect to cleaning premises.

Resources and Occupations.—The resources are large tracts of good land, well adapted for agriculture, timber-land and fishing. These Indians are learning to follow farming on an intelligent scale. Last winter they took out over 25,000 cedar railway ties and 10,000 posts, all of which the department disposed of for them at the highest market prices.

Buildings, Stock and Farm Implements.—Their log and frame dwellings are generally very comfortable and neatly constructed. Stables and outbuildings are kept in a good state of repair, and their stock is of fair quality. A goodly number of modern farm implements are used to good advantage.

Education.—Facilities for education are within easy reach of all children of school age on the reserve ; the boys' and girls' industrial institutions and boys' and girls' day schools at Wikwemikong are conducted by a well-qualified staff of teachers. Full particulars as to these matters will appear in the reverend principal's report. There is also a day school at Wikwemikongsing and one at Buswah village.

Religion.—These Indians are all Roman Catholics. The influence of the missionaries is a great factor in the advancement of the band.

Characteristics and Progress.—Most of these Indians are hard-working and industrious, and are quite up to the standard of advancement. Their chief is a good man, who seems to take great interest in the government of the Indians under his charge.

Temperance and Morality.—There are a few who indulge in strong drink occasionally, but on the whole these people are law-abiding and moral.

I have, &c.,

C. L. D. SIMS,

Indian Agent.

PROVINCE OF ONTARIO,
MISSISSAGUAS OF ALNWICK,
ROSENEATH, August 13, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to transmit my report and statistical statement in connection with the above Indians for the year ended June 30, last, and in gathering the information I was very careful to have it as nearly correct as possible.

Reserve.—Of this reserve 3,308·89 acres are in the township of Alnwick, in the county of Northumberland ; the reserve also comprises Sugar and Hickory islands in Rice lake, the former contains 100 acres and the latter 10 acres. Of the reserve proper, about 1,400 acres are rented to white tenants.

Vital Statistics.—In April last, when I took the census, the band numbered 230, being the same as in 1903. We had 9 births and 9 deaths during the year.

Health and Sanitation.—The health of the band, with the exception of two cases of consumption, is good. Beyond the above-mentioned cases, there is not another case of sickness in the band.

Occupations.—Several of the Indians are actively engaged in farming and dairying. Their crops are good, with the exception of wheat, and they receive considerable amounts from the cheese factories where they send their milk. Besides farming and dairying, wage-earning is the next occupation in importance, and, owing to the scarcity of help, many get good wages.

Buildings, Stock and Farm Implements.—The buildings on the reserve, with few exceptions, are frame, as a rule kept clean and tidy and in a good state of repair.

The stock in general is in good condition and many of the animals are valuable.

Those who farm are mostly provided with modern machinery.

Education.—The progress of the school is not all that could be desired, owing to the irregularity of the attendance.

Characteristics and Progress.—The Indians as a rule are making considerable progress in improving their places, buildings and fences, and in many other respects are doing fairly well.

Religion.—Nearly all the members of this band are members or adherents of the Methodist Church.

Temperance and Morality.—The moral status of the band in general is good, but there are several who get liquor whenever they can.

I have, &c.,

JOHN THACKERAY,

Indian Agent.

PROVINCE OF ONTARIO,
MISSISSAGUAS OF THE CREDIT,
HAGERSVILLE, July 5, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report of the Mississaguas of the Credit reserve for the year ended June 30, 1904.

Reserve.—The reserve is situated partly in the township of Tuscarora, county of Brant, and partly in the township of Oneida, county of Haldimand. It comprises 6,000 acres, of which 4,800 are in the township of Tuscarora, the remaining 1,200 in the township of Oneida. The reserve is adjacent to and lies to the south and east of the Grand River reservation; about eighty-five per cent of this land is good for cultivation.

Vital Statistics.—This band numbers 249 on the pay-list, consisting of 72 men, 78 women, 59 boys and 40 girls. There have been 5 births and 4 deaths, 2 women came in by marriage and 1 went out by marriage, making an increase of 2 since last census.

Health and Sanitation.—The health of the Indians has been good during the past year. All sanitary measures are faithfully attended to. The dwelling-houses in most cases are kept neat and clean and the premises in good order. Many of the housekeepers on this reserve would compare favourably with their white sisters.

Occupations.—In agricultural pursuits this tribe is making some improvement. Nearly half of the men are working their own holdings, and many more are endeavouring to get teams to do so. Quite a number of the women and some of the men spend

most of the summer in the fruit-growing district around St. Catharines and Grimsby, and make good wages, and return to the reserve for the winter.

Buildings.—There has been very little improvement on buildings on this reserve during the past year.

Stock.—The stock is mostly of common breed and requires improvement; it consists of horses, cattle and swine.

Farm Implements.—These embrace a fair number of ploughs, harrows, hay-rakes, fanning-mills, with a few reapers and mowers.

Education.—There is a good brick school-house situated in the centre of the reserve on land adjoining the council-house, which is well equipped with modern conveniences.

The discipline is good and the pupils are making satisfactory progress under a very efficient teacher, Miss Mary G. Bogle. Some of the pupils attend the high school in the village of Hagersville. At the last entrance examination in Hagersville a pupil of this school obtained the highest marks for writing.

Religion.—There are two Methodist churches on this reserve. These Indians are nearly all members or adherents of this denomination.

Rev. C. F. G. Cole is the resident missionary and looks after the spiritual welfare of the band. A majority of them attend church regularly. The Seventh Day Adventists have a few followers among the members of the tribe.

Characteristics and Progress.—Quite a number of this band are very industrious and doing well, one member has three teams and twenty-eight head of cattle, sends milk from eight cows to a cheese factory, has a good bank barn with first-class stone stables under. Among the band there are quite a number who work only when necessity demands and are inclined to be improvident. The majority of them are very liberal, and when they have plenty are always ready to share with a needy neighbour. They are all good citizens.

Temperance and Morality.—The members of this band as a rule are temperate and moral, although occasionally infractions of the regulations occur.

I have, &c.,

W. C. VAN LOON,

Indian Agent.

PROVINCE OF ONTARIO,
MISSISSAGUAS OF RICE AND MUD LAKES,
KEENE, July 20, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on Indian affairs in my agency for the year ended June 30, 1904.

RICE LAKE BAND.

Reserve.—The Rice Lake reserve is located on the north shore of Rice lake, in the township of Otonabee, county of Peterborough. It contains some 1,750 acres of land, of which about 775 acres are cleared ; about 300 of this is under lease to white tenants, while the locatees cultivate the remainder of said cleared land.

Vital Statistics.—The total number shown by the present census is 83, composed of 23 men, 23 women, and 37 young people under twenty-one years of age. During

the year there were 3 births, 1 marriage, 1 death, and none left the band, so that there is an increase of 2 since last report.

Health and Sanitation.—The health of the Indians, generally speaking, has been fairly good. Sanitary measures are very well observed on this reserve.

Occupations.—The occupations of this band are trapping, gathering wild rice, and basket-making. Some go to the lumber camps in winter and drives in the summer.

Buildings, Stock and Farm Implements.—The buildings on this reserve, with few exceptions, are frame, and are kept in a good state of repair. The stock is good, and the Indians have a good supply of agricultural implements.

Education.—The children on this reserve are now attending the white school, with Miss Crowley as teacher. They are progressing very well.

Religion.—The members of this band are all Methodists, and, with Rev. Mr. Dunkley as their minister, are taking a deep interest in the services held in their church each Sabbath evening.

Temperance and Morality.—The members of this band are well-behaved and law-abiding, and it is very seldom any of them indulge in strong drink.

MUD LAKE BAND.

Reserve.—This reserve is located on the shore of Mud lake, in the township of Smith, county of Peterborough. It contains some 2,000 acres, of which about 300 are cleared.

Vital Statistics.—The total number shown by the present census is 177, composed of 45 men, 43 women and 89 young people under twenty-one years of age. During the past year there were 7 births, 2 deaths, and 3 joined the band by marriage, an increase of 8 since last report.

Health and Sanitation.—The health of these Indians has been very good. Sanitary measures are very well observed, the houses present a clean and tidy appearance and every precaution is taken to prevent contagion.

Occupations.—In agricultural pursuits these Indians are making steady improvement. A good many of them work in the lumber camp in winter.

Buildings, Stock and Farm Implements.—The buildings on this reserve are of log and frame, and are kept in good repair. The stock is fair indeed. Quite a number of the Indians are supplied with farm implements.

Education.—The children on this reserve are making very fair progress in their studies. They have as teacher Mr. Alfred McCue, a member of the band.

Religion.—These Indians are all members or adherents of the Methodist Church. A minister comes to the reserve every Sabbath, and the Indians attend the services very regularly.

Temperance and Morality.—The members of this band are well-behaved and law-abiding, there being very little intemperance among them.

I have, &c.,

WM. McFARLANE,

Indian Agent.

PROVINCE OF ONTARIO,
MISSISSAGUAS OF SCUGOG,
PORT PERRY, September 17, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and tabular statement for the year ended June 30, 1904.

Reserve.—The reserve of the Mississaguas is situated in the township of Scugog, county of Ontario. The total area is 800 acres, of which 740 are reckoned of the choicest grain-land, the remaining portion being wooded. About 500 acres are rented to whites.

Vital Statistics.—The total population is 34, consisting of 11 men, 10 women, 6 boys and 9 girls. One death and one marriage occurred during the year, thus leaving a decrease of two since my last report.

Health and Sanitation.—Good health generally prevails. One death from old age occurred at the beginning of the year. The women are good housewives and take extra precautions to prevent uncleanliness.

Resources and Occupations.—The older Indians fish and hunt for a living, while the younger class turn their attention to agriculture. The women engage in basket-making.

Buildings, Stock and Farm Implements.—One new residence is in course of construction. The old log dwellings are being gradually replaced by neat and comfortable homes, until now only one of the old type remains. The stock is not improving, while the implements, although good, are not too well cared for.

Education.—There is no separate school. The children associate with the whites at a school close by, but their attendance is not of the best.

Religion.—The prevailing religious denomination is Methodist. The Indians have a church of their own at which the Rev. Mr. McConnell officiates every afternoon. About three parts of the band are members.

Characteristics and Progress.—A noticeable feature is industry, especially among the younger class.

Temperance.—The Indians are for the most part temperate. Some of the older ones find it hard to abstain when temptations present themselves.

General Remarks.—In summing up the foregoing remarks, it is fair to assume that advancement is going on, and this band is enjoying a fair share of prosperity.

I have, &c.,
A. W. WILLIAMS,
Indian Agent.

PROVINCE OF ONTARIO,
MOHAWKS OF THE BAY OF QUINTÉ,
BELLEVILLE, August 29, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Reserve.—The Mohawk reserve, in the township of Tyendinaga, county of Hastings, on the north shore of the Bay of Quinté, extends from the town of Deseronto on the east to the township of Thurlow on the west, and contains approximately 17,000 acres of land; the greater part of this reserve is good tillable land, almost wholly stripped of timber and largely under cultivation.

Vital Statistics.—The population of this band is 1,271, made up of 275 men, 301 women, and 695 young people and children.

Quite a number of old people died during the year and two white girls married into the band.

Health and Sanitation.—The general health of the dwellers on this reserve has been good during the year, with remarkable freeness from contagious diseases ; but last winter was an unusually trying one to many families on account of the continuous cold weather, deep snow and high price of fuel.

Resources and Occupations.—The chief employment of the Indians of this reserve is farming, and some of the farms are kept in a splendid state of cultivation and everything about them is neat and shows care and thrift.

Some forty white families occupy Indian lands on the reserve, under lease, and the rents received from them are applied on improvements of the farms and are used up in living expenses along with the wages the locatees earn working in the mills and factories at Deseronto and elsewhere. One Indian girl is teaching, and quite a few others are out at service. The hay and grain crops are quite equal this year to the average, and there are most favourable prospects for abundant root crops.

Buildings.—A few new buildings were erected and others were repaired, but many more need repairs. Arrangements were made during the year for repairing Christ church by an expenditure out of the capital fund of the band of about $2,000. The work is now being done.

Stock.—The horses and cattle on the reserve are of mixed breeds and of a pretty good quality. Dairying in this county has grown into a most important industry and the Indians contribute to the business ; their cows are well looked after and the milk for the cheese factories is carefully attended to.

Farm Implements.—All kinds of modern machinery for farming purposes are used on this reserve.

Education.—There are four public schools on this reserve, two Indian and two union of whites and Indians.

The mission school is taught by an Indian girl, the other three schools are taught by white teachers.

The schools were but indifferently attended last winter on account of the deep snow and intense cold, but so far this summer they are doing well and the Indian children are making fair progress.

Religion.—The Mohawks of the Bay of Quinté are all Protestants, and with but few exceptions members of the Church of England. There are two Anglican churches on the reserve, both stone. Christ church, near Deseronto, has connected with it a good farm with comfortable dwelling-house and outbuildings thereon for the Church of England missionary.

There are a few Presbyterians and they have a small frame church and burying-ground. The Presbyterian minister from the West-end Mission of Deseronto conducts services in this church.

Characteristics and Progress.—Most of the Indians, both men and women, are industrious and law-abiding. All such are improving their circumstances and properties, but some still are indolent and they are getting poorer and more miserable the longer they live ; with the exception of this indolent class, the members of this band are making progress in education, in home comforts and amenities of civilization.

Temperance and Morality.—Far too many of the members of this band use liquor to excess, and they are consequently shiftless and idle. Stringent measures have been taken to punish those who furnish the liquor, but still the practice goes on, and I cannot say that the drinking habit is less than it was years ago in this band. Some Indians contract debts and then claim the protection the law gives them and thereby injure the credit of the honest members. In other respects the morality of the band is reasonably satisfactory.

I have, &c.,

WM. R. AYLSWORTH,

Acting Indian Agent.

PROVINCE OF ONTARIO,
MORAVIANS OF THE THAMES,
DUART, August 6, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report of the Moravians of the Thames for the year ended June 30, 1904.

Reserve.—The reserve is located in the northern part of the township of Orford in the county of Kent, and contains about 3,010 acres of land.

Tribe.—These Indians are known as the 'Moravians of the Thames,' but belong to the Delaware tribe.

Vital Statistics.—The population of the band is 321, consisting of 83 men, 83 women, 83 boys and 72 girls, an increase of 11 over last year.

Health and Sanitation.—The health of the band has been excellent, no epidemic or contagious disease having appeared. Their houses are cleaned and whitewashed every year and the children vaccinated.

Occupations.—General farming is the chief occupation, but owing to the wet weather for the last two years, and the scarcity of labourers, the Indians have taken advantage of the high wages offered and worked out among neighbouring farmers and neglected their own farms. A few make some money by fishing, mat-making, and basket-making.

Buildings and Stock.—Only two new houses have been erected on the reserve during the year. The Indians are continually improving their stock, which adds greatly to their bank account and makes living easier.

Implements.—Those who attend to farming use all the modern implements, such as binders, mowers, horse-rakes, ploughs, disc-harrows and cultivators, while those who do not farm much, use more primitive ones.

Education.—There is one good school on the reserve available to all, but I am sorry to say that it is not so well attended as it should be. It is impossible to have regular attendance.

There is an agricultural society on the reserve under the control of the Indians, which holds a fair about the middle of October each year and thousands of people visit it. Last year over four thousand people were present on the opening day, and the Indians realized about $1,200 from the two days' fair.

Roads.—Our roads are in good condition and under the supervision of eight pathmasters ; they will compare favourably with those in the other parts of the township.

Religion.—We have two Methodist and one Anglican church. Services are conducted regularly in each and the attendance is always good.

Temperance and Morality.—Upon the whole, the Indians are quite moral. The marriage law is fairly well observed, but some of the younger people are inclined to use liquor to excess.

I have, &c.,

A. R. McDONALD,
Indian Agent.

PROVINCE OF ONTARIO,
OJIBBEWAS OF LAKE SUPERIOR, EASTERN DIVISION,
SAULT STE. MARIE, ONT., September 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement of the several bands of Indians in this agency for the year ended June 30, 1904.

GARDEN RIVER BAND.

Reserve.—This reserve is situated a short distance east of the town of Sault Ste. Marie, comprising an area of upwards of forty-five square miles, on the north bank of St. Mary's river, extending in length along the river from east to west about ten miles, and in width from north to south, from three to five miles.

It is traversed through its entire length by the Canadian Pacific Railway; Garden River station being situated near its centre.

The soil near the river is sandy or sandy loam, a large portion along the river, excepting those holdings under cultivation, is dotted with clumps of evergreens, forming a series of beautiful parks.

The portion of the reserve under cultivation is chiefly along the river, extending back in some places about a mile.

North of the cultivated portion, it is timbered with mixed timber ; a portion of the timbered land is rough and rocky, the rest fair agricultural lands.

A number of mining locations within the limits of the reserve have been surrendered and sold. Iron, copper, gold and marble have been discovered here.

Tribe.—This band belongs to the Ojibbewa tribe.

Vital Statistics.—The band numbered 453 persons, consisting of 110 men, 127 women, 110 boys, and 106 girls, besides a number residing on the reserve belonging to other bands or not claiming to belong to any band.

Health and Sanitation.—The general health of the band has been good during the past year, no epidemic has broken out. The situation is one of the healthiest in the district. The majority of the dwellings are kept clean and neat, and sanitary conditions are reasonably good.

Resources and Occupations.—Many of the people cultivate small plots of land in the reserve, raising cattle and horses, and the coarser grains, roots and vegetables, which are cultivated to a considerable extent. A few engage in hunting and trapping in the winter, while some are employed in the lumber woods for a considerable portion of the year ; others perform the duties of guides and prospectors, as well as working with survey parties. During the winter months a number of the band usually take out ties and saw-logs under contract, and make considerable money. Besides the above industries, sugar-making and berry-picking are engaged in during their respective seasons. The women manufacture fancy articles from sweet grass, birch bark and deer-skin.

Buildings.—The dwellings are either log or frame, generally whitewashed. Stables and barns are mostly of log.

The public buildings consist of the large council-house of two stories, and a lock-up.

Stock.—The stock consists of horses, cattle and swine, mostly of common breeds. There is a great need that some improvement be made in the quality of stock, as it is very inferior. A suggestion has been received from the department that it would assist in providing a better class of animals for the purpose of improving the stock.

Farm Implements.—This embraces the ordinary farm implements such as ploughs, harrows, hay-rakes, fanning-mills and ordinary tools, and a number of mowing machines.

Education.—There are two schools on the reserve. The Roman Catholic school, in charge of the resident priest, has two rooms, two lady assistants being employed. The average for the quarter ended last June was 23·7. Fair progress has been made during the year by the pupils. A new Church of England school was built two years ago, which is now under the charge of Mr. L. F. Hardyman. The building consists of a school-room and living-room for the teacher. The school grounds consist of about one acre, a portion of which is being cultivated by the teacher as a garden, and is embellished by a very beautiful flower garden. The school grounds have been neatly fenced with a wire fence by the supporters of the school, and the teacher has taken great pains to improve its appearance. The average attendance for the quarter ended June 30, was 16·04.

Religion.—The religious denominations of the band are Roman Catholic and Church of England, the Roman Catholics are the more numerous. Both denominations have neat churches, which are generally well attended. Rev. Father Drolet, S.J., is the priest in charge of the Roman Catholic church, and Rev. Mr. Frost of the Anglican church.

Characteristics and Progress.—Most of the band are industrious, some work only occasionally as necessity demands. As a rule they are rather inclined to be improvident, liberal to their friends and neighbours when they have plenty, and ready to share with them to the last. They are generally good citizens.

Temperance and Morality.—A large number of the band are temperate and well-behaved, but there are some who indulge freely in intoxication whenever the opportunity presents itself ; and complaints have been made during the year indicating that intemperance was on the increase among them. There have been several cases of drunkenness on the reserve which I found necessary to punish by fine or imprisonment.

BATCHAWANA BAND.

Reserve.—The greater part of the reserve which originally belonged to the Batchawana band has been surrendered and placed in the market for sale. They still retain a portion of Whitefish island on the St. Mary's river, where two or three families still reside. At Goulais bay, a small reserve has been purchased for them in the township of Kars, containing about 1,000 acres.

Tribe.—This band is also of the Ojibbewa tribe, a portion of them being half-breeds of French extraction. The Agawa branch of this band nearly all reside on the west shore of Batchawana bay, and are mostly pure Indians.

Vital Statistics.—The Batchawana band numbers about 373 persons, consisting of 98 men, 111 women, 88 boys and 76 girls, of which the Agawa branch of the band embraces 59 persons,—16 men, 12 women, 20 boys and 11 girls. There has been an increase in this band during the year of 6.

Health and Sanitation.—The health of the band has been very good during the past year, no epidemic has appeared. The dwellings are usually clean and well kept, and sanitary regulations are fairly well observed.

Resources and Occupations.—Those of the band who reside on the Garden River reserve, of which there are upwards of one half, cultivate small patches of a few acres each. They are engaged in the winter in working in the woods and hunting and trapping, while in the summer they act as guides, explorers and river drivers. They also manufacture baskets, moccasins and fancy articles. The Goulais bay and Batchamana members of this band nearly all engage in fishing and hunting in the summer, in fact some of them continue fishing during the winter, through the ice. No farming is done by them at either Goulais Bay or Batchawana.

Buildings.—The houses are generally log with a few frame buildings and are generally comfortable.

Stock and Implements.—The members of the band living at Garden River, raise stock, consisting of cattle, horses and pigs. At Goulais Bay and Batchawana only a few cows and pigs are kept. The implements are ploughs, harrows and other ordinary farm and garden implements.

Education.—There are no schools belonging to this band. The children living on the Garden River reserve attend the schools there. A petition has been forwarded to the department asking that a school be built at Goulais Bay, and it is expected that in a short time a suitable building will be supplied, as the people are very anxious to have a school.

Religion.—The majority of the Batchawana band are Roman Catholics, especially those residing at Batchawana and Goulais Bay. A few residing at Garden River attend the Anglican church. They have a small church at Goulais Bay, and one at Batchawana, but no resident priest, a priest paying periodical visits.

Temperance and Morality.—The members of the band who reside at Goulais Bay and Batchawana are generally temperate and moral, some, however, who reside at or near Sault Ste. Marie are addicted to drunkenness and immorality.

Character and Progress.—The majority of the members of this band appear to be intelligent and industrious, but inclined to be improvident.

MICHIPICOTEN BAND.

Reserve.—This band has had a small reserve set off for it a short distance west of the mouth of the Michipicoten river on Lake Superior, embracing an area of between 8,000 and 10,000 acres. The lake terminus of the branch of the Algoma Central and Hudson Bay Railway running to Helen mine is situated on a surrendered portion of this reserve.

There are only five families on the reserve, the rest of the band reside at the Mission, Michipicoten river, at Missinabie on the main line of the Canadian Pacific Railway, and in the neighbourhood of Chapleau, also on the main line of the Canadian Pacific Railway.

Tribe.—This band belongs to the Chippewa tribe, and embraces a few French, English and Scotch half-breeds.

Vital Statistics.—There are 356 persons in the band—79 men, 93 women, 88 boys and 96 girls.

Health and Sanitation.—Owing to the very severe winter of the past year, considerable sickness and some hardship was undergone by the members of the band, but generally the health for the year was good. No epidemic attacked any portion of the band, with the exception of the four or five families living on the reserve. Most of the Indians of the band reside in temporary habitations or tents during the greater part of the year and these appear to be the stronger or healthier portion of the band. Both at Missinabie and Chapleau, those residing there have petitioned the department to have set apart for them one or two hundred acres of land in each locality mentioned, for a permanent camping-ground, agreeing to pay for such land out of the moneys coming to them from the annuity. It is probable that before another year they will be in possession of such lands. The few residents on the reserve appear to be clean and comfortable.

Occupations.—The chief employment engaged in by the members of this band is hunting and trapping in the winter, canoeing, acting as guides for exploring and surveying parties, and other like occupations during the summer season. They are largely employed by the Hudson's Bay Company as well as by railway contractors and others in like occupations.

Buildings.—There are only five houses on the reserve, one frame and four log.

Stock.—There is no stock of any kind on the reserve. At Michipicoten River some members of the band own a few cattle.

Education.—Education is in rather a backward state, there being only one small school under the charge of the Roman Catholic priest at Michipicoten River. The Indian children at Missinabie attend the public school, having an arrangement to that effect with the school authorities. A very fair attendance is the result.

Religion.—The members of this band at Michipicoten River are of the Roman Catholic faith. They have on the reserve a neat frame church, where they have occasional services. There is also a small Roman Catholic church at Michipicoten River, where occasional services are held. The members of the band at Chapleau and Missinabie, with the exception of three or four families, belong to the Church of England. They have no place of worship of their own at this place, but attend the English Church services at the regular churches, where special services in their own language are held. The members of this band appear to be reasonably industrious, contented and happy, those at Chapleau and Missinabie presenting about the best type of race under my supervision.

Temperance and Morality.—As a rule they are temperate and moral, although occasional infractions of the regulations occur at Michipicoten River.

SHINGWAUK AND WAWANOSH HOMES.

These homes are situated a short distance beyond the eastern limit of the town of Sault Ste. Marie. The Indian children are trained in regular school studies, and in various industries, the boys being taught farming, carpentry, shoemaking, tailoring and other trades, and the girls sewing, baking, cooking, laundry work, &c., by skilled instructors in the different arts, the whole being under the management of Principal George Ley King and Mrs. King.

The Church of England controls this institution, and it is largely dependent upon voluntary subscriptions, the per capita grant of $60 per annum received from the department not being adequate to cover all the necessary expenses.

The boys and girls are taught together in class-rooms, but are separate in their playgrounds. Neatness and cleanliness prevail throughout every department, each pupil performing a portion of the work. The pupils appear to be progressing and obtaining a training that will fit them for positions in after-life.

During the quarter just ended there were in the institutions fifty-seven pupils, thirty-six boys and twenty-one girls.

I have, &c.,

WM. L. NICHOLS,

Indian Agent.

PROVINCE OF ONTARIO,
OJIBBEWAS OF LAKE SUPERIOR, WESTERN DIVISION,
PORT ARTHUR, September 2, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report concerning the Indians of this agency for the year ended June 30, 1904.

FORT WILLIAM BAND.

Reserve.—The reserve of this band is situated along the Mission and Kaministiquia rivers, and is on the south side. It contains 13,500 acres. The quality of the

land along the river is good, so much so that the land next to the reserve is being bought up for farming purposes.

Tribe.—These Indians belong to the Ojibbewa tribe.

Vital Statistics.—The population is 292, consisting of 64 men, 90 women, 72 boys, and 66 girls. During the year there were 5 births and 9 deaths, and 5 joined the band by marriage.

Health and Sanitation.—In the first part of the year there was considerable typhoid among the band, but by great care they managed to get free from it. Almost every year quite a number of houses are whitewashed ; they seem to take great interest in keeping their homes clean.

Occupations.—The occupations of the band are exploring, farming, wood-cutting, and a few of them engage in fishing. Some of them seem to prefer working at the building of elevators, coal-docks, &c., and they can always get this kind of employment at Port Arthur and Fort William, which places are not far distant from them.

Buildings.—Their homes are not as a class very large, but they build them well so that they are comfortable. When found necessary, the members of the band will work together in building a home for widows or others who are in need.

Stock.—They seem to be taking more interest in having good stock, and some of them compete and take prizes for their cattle at the yearly exhibition held in Port Arthur.

Farm Implements.—They have considerable machinery and buy more as they need it.

Education.—There are two schools on the reserve, the Indian boys' and girls' day school and the St. Joseph's Orphanage. These schools are taught by Sisters of St. Joseph, and the children are making very fair progress.

Religion.—There are two hundred and thirty-six Roman Catholics, and fifty-six pagans in the band. There is one church on the reserve and the members of the band take great interest in it. It is well attended. There is one convent, kept by the Sisters of St. Joseph.

Characteristics and Progress.—The Indians of this band are taking more interest in agriculture than they used to in years gone by, and it is expected that before very long they will not have to depend on outside work, but that they will reap more benefit by devoting all their time to their farms.

Temperance and Morality.—The morals of the Indians are good ; and as to temperance their conduct is as good as can be expected.

RED ROCK BAND.

Reserve.—This reserve is situated on the Nipigon river near Lake Helen, and contains 486 acres.

Tribe.— These Indians are also of the Ojibbewa tribe.

Vital Statistics.—The population is 215, consisting of 47 men, 57 women, 62 boys, and 49 girls. There were 6 births and 5 deaths during the year.

Health and Sanitation.—The general health of the members of the band is and has been good. The old rubbish has been burned, as it nearly always is, and some of the houses have been whitewashed.

Occupations.—The chief occupation of the members of this band is serving as guides for tourists and others who go up the Nipigon river fishing and exploring.

Some of them devote a little time to farming, but as yet they seem to cultivate only enough land to serve as gardens for themselves. During the winter they depend chiefly on their hunting, but in the last few years they seem to have cultivated a liking for lumbering and it is not difficult for them to obtain good wages, as there are many camps that need men.

Buildings.—Their buildings are quite comfortable.

Stock.—They are gradually taking more interest in stock-raising and are getting more and better stock.

Farm Implements.—As they do not cultivate large farms, they do not require many farm implements, but they have as many as they need.

Education.—The school at the Lake Helen Mission is always fairly well attended, and the children are making good progress. The Red Rock school has been closed for want of attendance, but the department has arranged to have it re-opened at the request of the parents, who promise a good attendance.

Religion.—There are thirty-five Anglicans and one hundred and eighty Roman Catholics in this band ; they take great interest in their religion.

Characteristics and Progress.—These Indians also are industrious and get along very well.

Temperance and Morality.—In these respects they are improving year by year.

CHURCH OF ENGLAND MISSION.

Reserve.—This reserve is situated on the west shore of McIntyre's bay and is occupied by part of the Red Rock band. It contains 580 acres.

Population.—The population is 23.

Tribe.—These Indians also belong to the Ojibbewa tribe.

Occupations.—These Indians do considerable farming and lumbering, but hunting and exploring seem to be their chief occupations.

Buildings.—The experience of the cold winters has taught the Indians to build warm houses, and those of this band are very comfortable.

Religion.—These Indians are all Anglicans.

Characteristics and Progress.—These Indians are industrious and are breaking new land continually. They have built a house, which is now the home of a missionary.

NIPIGON BAND.

Reserve.—One part of this reserve is situated on Gull bay, Lake Nipigon, and contains 9,825 acres. The soil on this part of the reserve is not the very best for farming purposes, but there is good timber on it and it is quite close to the river.

The other part of this reserve is situated at Jackfish island near the Hudson's Bay Company's post, and contains 135½ acres.

Tribe.—These Indians are also of the Ojibbewa tribe.

Vital Statistics.—The population of this band is 491, consisting of 76 men, 108 women, 165 boys, and 142 girls. There were 13 births and 19 deaths during the year.

Occupations.—The chief occupation of this band is serving as guides to tourists. They do a little at farming, but as yet they do not seem to depend much on it. During the winter months they depend chiefly on hunting.

Buildings.—There were a few buildings completed this year.

Farm Implements.—They have all the farm implements they need at present.

Religion.—Of this band 12 are Anglicans, 175 are Roman Catholics, and 304 are pagans. There is a Roman Catholic church on Jackfish island, where mass is held occasionally.

Temperance and Morality.—Their morals are good and their temperance is fair.

PAYS PLAT BAND.

Reserve.—The reserve of this band is situated on the Pays Plat river, Lake Superior, and contains 605 acres.

Tribe.—These Indians also belong to the Ojibbewa tribe.

Vital Statistics.—The population is 42, consisting of 6 men, 12 women, 14 boys, and 10 girls. There was one death during the year and there were no births.

Health and Sanitation.—The health of the band has been good. The Indians take considerable interest in keeping the reserve clean ; at different times during the year they burn the old rubbish.

Occupations.—Their principal occupations are hunting, fishing and mining. A few of them have small gardens and raise enough vegetables for their own use. In berry season most of them pick berries and sell them to dealers close by.

Buildings.—They have built about four new houses this year and now they are working together building one for one of the band who had the misfortune of having his home burned a short time ago.

Stock.—Till this year they had no stock, but this year they have purchased two horses.

Education.—The school has not been opened for two years. It was closed for want of attendance, and even now the parents do not take any interest in the education of their children.

Religion.—All the Indians of this band are Roman Catholics. There is a church on the reserve and a missionary priest goes there at different times during the year to say mass.

Characteristics and Progress.—They are industrious and do not seem to find any trouble in getting employment, as prospectors almost always require help, and generally pay them good wages.

Temperance and Morality.—In both these respects there is nothing of which to complain.

PIC BAND.

Reserve.—This reserve is situated on the Pic river, Lake Superior, and contains 800 acres, divided into twenty-five farms facing the river.

Tribe.—This band also belongs to the the Ojibbewa tribe.

Vital Statistics.—The population is 213, consisting of 46 men, 57 women, 59 boys, and 51 girls. There were 7 births, and 5 deaths, and 2 joined the band by marriage.

Health and Sanitation.—The health of the band has been good. The members of the band do a good deal every year towards keeping the reserve clean.

Occupations.—The Indians of this band do considerable farming, but they depend more on fishing and exploring, and in the winter some of them go into the lumber camps, others depend chiefly on hunting.

Buildings.—The buildings they occupy are comfortable.

Farm Implements.—They have all the farm implements that they need.

Education.—There is a school on the reserve ; it is well attended.

Religion.—Of this band six are Anglicans and two hundred and seven are Roman Catholics. There is one church on the reserve and mass is held there occasionally.

Characteristics and Progress.—They are a very industrious people and are prosperous. They have broken a considerable quantity of new land during the year.

Temperance and Morality.—Their morals are very good and their temperance is above the average.

LONG LAKE BAND.

Reserve.—This reserve is situated at the northwest corner of Long lake, and contains 612 acres.

Tribe.—These Indians are of the Ojibbewa tribe.

Vital Statistics.—The population is 339, consisting of 60 men, 86 women, 83 boys, and 110 girls. There were 11 births and 9 deaths during the year.

Health.—The health of the band has been good.

Occupations.—This band depends generally on hunting, but this year most of them are engaged in portaging supplies for the survey of the Grand Trunk Pacific.

Religion.—Of this band sixty-five are Anglicans and two hundred and seventy-four Roman Catholics. There is one Roman Catholic church on the reserve and a missionary priest goes there occasionally to say mass.

Characteristics and Progress.—They are industrious and are fairly prosperous.

The temperance and morals of the band are good.

I have, &c.,

L. U. BONIN,

Indian Agent.

PROVINCE OF ONTARIO,
PARRY SOUND SUPERINTENDENCY,
PARRY SOUND, August 20, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report and statistical statement showing the condition and progress of the various bands in this superintendency, for the year ended June 30, 1904.

PARRY ISLAND BAND.

Reserve.—This reserve is situated on the eastern shore of the Georgian bay, near the town of Parry Sound. It contains an area of 27 square miles.

Tribe or Nation.—The Indians of this band belong to the Ojibbewa tribe.

Vital Statistics.—The population of this reserve (exclusive of those Indians residing on the reserve who do not belong to the band) is 103, consisting of 21 men, 37 women and 45 children. During the year there have been 2 deaths and 1 joined the band, making a decrease in the number of persons in the band of 1 for the year.

Health.—The health of the Indians of this band for the year has been very good, only two deaths being recorded during that period.

Occupations.—The members of this band have exceptional means of earning a livelihood. Besides their agricultural pursuits, which are gradually being improved, they secure considerable employment acting as guides to tourists who visit the adjacent summer resorts during the season, they also find employment in the works of the Canada Atlantic Railway at Deport Harbour, located on the reserve, and in winter they can secure work in the lumbering camps located within easy reach of the reserve. The also hunt and fish.

Buildings and Stock.—The improvements in these are not as noticeable as I could wish. There is, however, one very good farm on the reserve owned by James Walker, a former member of the Cape Croker band, but who now belongs to the Parry Island band, and I am endeavouring to induce the other members of the band to emulate this Indian in their agricultural pursuits.

Education.—The educational affairs of this band are in a fairly satisfactory condition. There are two schools on the reserve, each taught by a female teacher holding a third-class certificate. There are twenty children of school age on the reserve, besides those children residing on the reserve who do not belong to the band, some of whom attend school, so that the attendance has been fairly good during the past year. The progress of the pupils has been as good as could be expected.

Religion.—In this band religious denominations are represented as follows : forty-five Methodists, thirty-nine Roman Catholics and nineteen pagans. The Methodists have a very good church on the reserve, and the services, which are conducted by the Rev. Richard Black, the resident missionary on the reserve, are usually well attended. The Roman Catholics receive occasional visits from one of their clergy ; the services at such times being held in the church at Skene village.

Characteristics.—The Indians of this band are a very well-behaved and law-abiding people, and morally they stand very high.

Temperance.—The members of this band are a most temperate body, as no case of intemperance among them during the year has been reported to me ; their conduct in this respect has been quite satisfactory.

SHAWANAGA BAND.

Reserve.—This reserve is situated about four miles inland from the eastern shore of Shawanaga bay, on the east side of Georgian bay, and twenty-three miles north of the town of Parry Sound. It contains an area of fourteen square miles.

Tribe or Nation.—The Indians of this band belong to the Ojibbewa tribe.

Vital Statistics.—This band has a population of 111, consisting of 26 men, 32 women and 53 children. During the year there have been 3 births and 1 death, making an increase in the band of 2 for the year.

Health.—The health of this band for the past year has been very good, only one death being recorded.

Occupations.—Farming to a limited extent forms a part of the occupation of this band. Fishing and hunting is, however, the means adopted by most of them in earning a living. The Buffalo Fish Company, which has a depot at Pointe au Baril, employs quite a few of the members of this band in the capacity of fishermen, at which they make good wages. These Indians also gather and sell wild fruits, &c.

Buildings.—The buildings of this band are small, and of an inferior type. Most of them are built of logs, and of such dimensions that they do not allow of the proper housing of the occupants.

Education.—The children of this band are taught in a school-house on the reserve, where the exercises are conducted by a female teacher holding a third-class certificate. The course of studies is that authorized by the department. The number of children of school age is twenty-eight. The progress of the pupils during the past year has been very fair.

Religion.—Religious denominations are represented in this band as follows : seventy-six Methodists and thirty-five Roman Catholics. There are two churches on the reserve ; the one belonging to the Methodists, which is now completed, being a very creditable structure ; the other, belonging to the Roman Catholics, is not near completion yet. Services have frequently been held in the new Methodist church, and they have been well attended.

Characteristics.—The Indians of this band, while not as industrious, collectively, as they might be, appear to be a bright intelligent body of people. A few of them do exceptionally well in their employment as fishermen for the Buffalo Fish Company at Pointe au Baril, and if more of the band would apply themselves to work, they would be able to earn a fair living.

Temperance and Morality.—I am pleased to be able to say that no case of intemperance among the band has been reported to me during the past year. Their moral conduct has also been of a high order.

HENVEY INLET BAND.

Reserve.—This reserve is situated on one of the arms or inlets of the Georgian bay, almost midway between Byng inlet and French river. It contains an area of thirty square miles.

Tribe or Nation.—These Indians belong to the Ojibbewa tribe.

Vital Statistics.—This band has a population of 172, consisting of 47 men, 60 women and 65 children. During the year there were 7 births and 4 deaths, which makes an increase in the population of this band of 3 for the year.

Health.—The health of this band for the past year has been fairly good.

Occupations.—The members of this band engage in farming only to a limited extent. Fishing, hunting, and working in the lumber camps in the vicinity of the reserve are the means adopted by most of them in earning a living.

Education.—The number of children of school age on this reserve is twenty-nine. There is one school on the reserve conducted by a female teacher holding a third-class certificate. The course of studies is that authorized by the department. The attendance and discipline are very good, and the pupils are making very good progress in their studies.

Buildings, &c.—The buildings belonging to the members of this band are of a very fair order, their dwelling houses being whitewashed and kept in a very neat condition. Their village is located on a high picturesque bluff, and I think, taking their houses collectively, they form the most creditable group of Indian dwellings in this superintendency.

Their agricultural implements are not numerous and comprise five ploughs and a harrow.

Religion.—Nearly three-fourths of the members of this band are Roman Catholics, the remainder being Methodists. A very good Roman Catholic church is now completed, and services are occasionally held in it by the missionary priest who resides at Byng Inlet. The Methodists have also erected a very good church and services are frequently held in it by visiting clergy.

Characteristics.—The members of the band are of a superior character. They are a stalwart body of men and their appearance indicates constant industry.

Temperance and Morality.—Their conduct in both these respects has been, during the past year, all that could be desired.

WATHA BAND (FORMERLY GIBSON).

Reserve.—This reserve is situated between the southern end of Lake Muskoka and the Georgian bay. It contains an area of 25,582 acres.

Tribe or Nation.—These Indians are Mohawks, or as they are more generally known, Iroquois. They were originally residents of Oka, Quebec.

Vital Statistics.—This band has a population of 139, consisting of 37 men, 32 women and 70 children. During the year there were 3 births, 1 joined the band, 2 died and 4 left the band, making a decrease of 2 in the number of persons comprising the band for the year.

Health.—The health of this band for the year has been very good.

Occupations.—The members of this band depend chiefly on farming for a living. During the winter months some of the younger men find occasional employment in the lumber camps in the vicinity of the reserve, and in summer a number of them act as guides to tourists who frequent the Muskoka lakes in large numbers.

Buildings.—The buildings belonging to the members of this band are superior to those found on any of the other reserves in this superintendency.

Education.—There is one school on this reserve, conducted by a male teacher holding a third-class certificate. The number of children of school age is thirty-two. The school is under the supervision of the Methodist Missionary Society, and very fair progress is being made in the education of the children.

Religion.—There are three religious denominations represented in this band, consisting of 123 Methodists, 14 Roman Catholics and 2 Plymouth Brethren. A Methodist missionary in the person of the school teacher, is stationed on the reserve, and regular services are held in the church, which are well attended by the adherents of this denomination.

Characteristics.—This band may be considered the most industrious and progressive of any in the superintendency, which is largely due to the interest taken in farming.

Temperance and Morality.—The conduct of this band in these respects is of an exceptionally high order and leaves nothing to be desired.

MAGANETTAWAN BAND.

Reserve.—This reserve is situated about five miles from the mouth of the Maganettawan river. It contains an area of 8,670 acres.

Tribe or Nation.—The Indians of this band belong to the Ojibbewa tribe.

Vital Statistics.—There are only 28 members of this band who reside permanently on the reserve, the remainder reside on the Manitoulin island. The population of the reserve consists of 6 men, 9 women and 13 children. During the past year no births nor deaths were recorded, which leaves the population the same as last year.

Health.—The health of the resident members of this band for the past year has been fairly good.

Occupations.—The members of this band engage in farming in a small way. Their reserve lies adjacent to the large lumber mills of the Messrs. Holland & Graves Company at Byng Inlet, which enables them to secure employment at any time they may require it, so that if they want to work, they can easily earn a very fair living. They also hunt and fish.

Buildings and Stock.—As the population of the resident members of this band is small, their buildings are, of course, in proportion, and consist of two dwellings, two stables and two other buildings. Their live stock is fairly numerous for the population of the reserve.

Education.—There is no school on this reserve. The children who attend school do so at Byng Inlet, about two miles distant from the reserve, where there is a large and well conducted school.

Religion.—The members of this band are all Roman Catholics. They have no church, as the population of the reserve is too small to build and support one.

Characteristics and Temperance.—The Indians of this band are an industrious and well-behaved people, and are as temperate in their habits as any of the bands in this superintendency.

I have, &c.,

W. B. MACLEAN,
Indian Superintendent.

PROVINCE OF ONTARIO,
SAUGEEN AGENCY,
CHIPPAWA HILL, July 18, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Reserve.—The Saugeen reserve is located in the county of Bruce, on Lake Huron. It comprises about 9,020 acres.

Tribe or Nation.—The Indians of this reserve are Chippewas.

Vital Statistics.—The population numbers 389 persons, consisting of 190 males and 199 females. There has been a net increase of 3 persons during the year.

Health and Sanitation.—The health of the Indians has been generally good during the year. There have been no epidemics of any contagious disease, and the deaths that occurred were either of aged people or of infants. The sanitary precautions contained in the circular issued by the department are fairly well observed.

Occupations.—The chief occupation of the Indians is mixed farming. A limited amount of timber is sold during the year. This quantity has been greatly decreased in the last two years. A number of Indians of both sexes are engaged as hired help among the white people. The Indians also derive a considerable income as dock and mill hands, by teaming for lumber companies, by manufacturing baskets and rustic work, and by berry-picking, and gathering medical herbs and roots.

Buildings.—The number of new buildings erected during the past year has not been large, but many valuable improvements in buildings and fences have been made.

Stock.—The horses are the most valuable part of the live stock owned by the Indians. They also possess cattle, hogs and poultry of considerable value.

Farm Implements.—The farm implements owned by the Indians include all those required in cultivating the land and in harvesting their crops.

Education.—This is a question of the greatest interest among the Indians. There are three brick school-houses on the reserve. Each one is well equipped and is kept open during the whole teaching year. The children are progressing very well.

Religion.—The Methodist, Roman Catholic and Congregationalist denominations are each represented on this reserve. The Methodists have a resident missionary and three churches on this reserve. The Roman Catholics have a beautiful stone church and are under the care of a missionary who does not reside on this reserve. All the Indians manifest a commendable interest in religious affairs.

Characteristics and Progress.—Most of the Indians on this reserve are law-abiding. Nevertheless almost without exception they possess those characteristics common to their race, namely, lack of ambition and thrift. On account of this their progress is not rapid.

Temperance and Morality.—As a rule the Indians of the reserve are temperate. Unfortunately a few are addicted to the use of intoxicants and are not strictly moral.

I have, &c.,

JOHN SCOFFIELD,

Indian Agent.

PROVINCE OF ONTARIO,
SIX NATION INDIANS,
BRANTFORD, July 27, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report of the Six Nations of the Grand river, for the year ended June 30, 1904.

Reserve.—The reserve is located in the township of Tuscarora, and partly in the township of Onondaga, in the county of Brant, with a portion in the township of Oneida, in the county of Haldimand. It contains 43,696 acres.

Tribe.—The tribes consist of the Mohawks, Oneidas, Onondagas, Tuscaroras, Cayugas, Senecas and Delawares, comprising the Six Nations of the Grand river. The number of tribes composing the Six Nation confederation was not always the same ;

prior to 1714 it was the Five Nations, when the Tuscaroras were admitted, since which time it has been called the Six Nations. Some one hundred and fifty Delawares were adopted later.

Vital Statistics.—There are 1,177 men, 1,129 women, 943 boys, and 946 girls, making a total of 4,195, being an increase of 63 over the previous year. The changes during the year were as follows : 143 births, 12 women were added to the band through marriage, there were 86 deaths, 2 women ceased to be members by marrying into other bands, and 4 women through residence in the United States for over five years.

Health and Sanitation.—The general health has been usually good during the year. During the first quarter there was an epidemic of scarlet fever of moderate severity, but without fatal result in any case ; there were fifteen cases in one section, which necessitated the closing of the school until the danger of infection was removed. During the same quarter there were seven cases of typhoid fever and a considerable number of cases of malarial fever. The rest of the year was free from disease of an epidemic character. During the winter there was more than the usual number of pulmonary afflictions, probably due to the severe weather.

There were 6,907 patients treated at the medical office on the reserve ; 1,738 visits were made ; making 7,384 miles travelled by the physicians on the reserve during the year.

The annual sanitary circular issued by the department was carefully explained and interpreted at the general council held on April 5, and distributed among the members of the band by the members of the board of health, which board greatly assisted in enforcing the sanitary measures contained in the department's circular.

Occupations.—General farming is the chief occupation. The crops and stock compare favourably with those of the white men surrounding the reserve. The crops for the past year were generally good, wheat, oats and corn being a heavy crop, while barley and pease were a light crop. Potatoes were a fairly good crop.

Buildings and Stock.—The Indians are continually improving their farms by enlarging their barns for the better protection of their stock, crops and implements, building wire fences and sinking of wells.

Education.—There are eleven schools on the reserve, all well attended. Six white and five Indian teachers are employed. A most successful teachers' convention was held in June. Officers were appointed and instructed to prepare rules and regulations to include two meetings in each year.

Religion.—Great interest is manifested by the Indians in church and Sunday school work, all the services are well attended, which are regularly held by the Church of England in seven localities, the Baptists in three, the Methodists in four and the Seventh Day Adventists in two. The three resident missionaries are very popular and doing good work. Considerable labour and expense were contributed by the Indians to improve their churches and meeting places.

Characteristics and Progress.—The Indians are constantly improving and taking more interest in farming ; during the past year two large frame dwellings and twenty-one large barns, mostly with stone basements, were erected, as well as many new wire fences ; also a number of wells for the better and more convenient supply of water for the stock were completed. The Farmers' Institute of the south riding of Brant held an afternoon and evening public meeting on the reserve in January ; both meetings were largely attended by Indians. The Agricultural Society of the reserve, wholly under the control of the Indians, held its three days' annual fair in October, which was a great success.

The road-work under the direction of forty-seven pathmasters, who are appointed annually by the chiefs in council, was well attended to.

Temperance and Morality.—There are several temperance societies on the reserve, and meetings are regularly held.

I have, &c.,

E. D. CAMERON,

Indian Superintendent.

PROVINCE OF ONTARIO,
STURGEON FALLS AGENCY,
STURGEON FALLS, August 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my first annual report and statistical statement concerning the Indians of this agency for the year ended June 30, 1904.

NIPISSING BAND.

Reserve.—This reserve is situated on the north shore of Lake Nipissing, two miles west of the town of North Bay ; it formerly comprised an area of 80,640 acres, but 6,400 acres has been surrendered, still leaving 74,240 acres for the use of the band.

Tribe or Nation.—The Indians of this band belong to the Ojibbewa tribe.

Vital Statistics.—This band has a population of 213, consisting of 44 men, 61 women and 108 children. During the year there were 10 births and 1 death and 2 entered the band by marriage, making a total increase of 11 for the year.

Health.—The health of the members of this band for the past year has been exceptionally good ; there has not been any epidemic, and the cleanliness evidently contributed to this.

Occupations.—The principal occupations of these Indians are hunting, fishing and acting as guides to tourists and surveying parties ; some cultivate small farms along the lake front and during the winter they engage in the lumber camps. At present quite a number are engaged in taking supplies to surveying parties on the route of the Grand Trunk Pacific Railway.

Buildings and Stock.—The Indians are continually improving their buildings, particularly houses ; during the past year six new houses were completed. They are kept clean and comfortable. The Indians have only a few small barns and stables, for they are not much in need of such. They have very little stock, only a few horses, a few cows, pigs and poultry.

Farm Implements.—They have a few ploughs and harrows, and are well supplied with spades, shovels, hoes and garden tools ; all the cultivation is done with these implements.

Education.—There is one school on the reserve, situated at Beaucage, presided over by a female teacher holding a third-class certificate ; the attendance is good and the progress of the pupils satisfactory.

Religion.—The members of this band are all Roman Catholics. They have a good church on the reserve, where services are conducted by visiting missionaries, and the Indians appear to take a very active interest in religious instruction.

Characteristics and Progress.—They are very industrious and law-abiding and are improving in their manners and show a desire to be well thought of in their business methods.

Temperance and Morality.—With a few exceptions, temperance is now fairly well observed ; the morality of these Indians is excellent.

DOKIS BAND.

Reserve.—The reserve belonging to this band is situated at the head of the French river, where it leaves Lake Nipissing ; it contains an area of 30,300 acres, consisting of the two large Okindawt islands. These Indians are the owners of a valuable tract of pine timber, which if disposed of would place a large sum at the credit of the band and would enable them to live comfortably on the interest.

Tribe or Nation.—These Indians nominally belong to the Ojibbewa nation, but they are all half-breeds with a large admixture of French blood.

Vital Statistics.—The population of this band is 78, consisting of 19 men, 26 women and 33 children. During the year there were 2 births and 3 deaths, making a total decrease of 1 in the number of persons comprising this band for the year.

Health.—The health of this band for the year has been good.

Occupations.—The occupations of these Indians are hunting, fishing and working in adjacent lumber camps. Those who live on the reserve cultivate small gardens and catch fish for their own use.

Buildings and Stock.—The buildings of this band are few in number and built of logs. The stock comprises only a few cattle and ponies.

Education.—There is not any school on this reserve ; consequently, the children are not getting an education.

Religion.—The Indians belonging to this band are all Roman Catholics ; they have no church on the reserve.

Characteristics.—The members of this band are not industrious and seem to live contented in small cabins, they do not take to farming, but follow their old mode of living.

Temperance and Morality.—The conduct of this band in these respects is of exceptionally good order.

TEMAGAMING BAND.

Reserve.—No reserve has yet been given to this band; the members live around the shores of Lake Temagaming, while quite a number live on Bear island, near the Hudson's Bay Company's post. Lake Temagaming is situated seventy-two miles from North Bay and is noted for its many beautiful islands and clear water, and is fast becoming prominent as a tourist resort.

Tribe or Nation.—The members of this band are pure Ojibbewas.

Vital Statistics.—This band has a population of 88, consisting of 24 men, 36 women and 28 children. During the year there were 2 births and 2 deaths and 1 woman entered the band by marriage, making a total increase of 1 in the number of persons comprising this band for the past year.

Health.—The health of the members of this band for the last year has been good.

Occupations.—The principal occupations of these Indians are hunting, fishing and acting as guides. They do not farm, as they say that they have no land of their own to settle on.

Buildings and Stock.—The buildings of this band are very limited, a large number living in tents and wigwams around the shore of the lake, and others having houses on Bear island.

Education.—This band has a good school on Bear island, Lake Temagaming, in charge of Mrs. Woods, a competent teacher, who is also a general favourite with the members of the band. The children are a smart, intelligent class and are progressing rapidly with their studies.

Religion.—This band is composed entirely of Roman Catholics ; they have recently completed a new church near the Hudson's Bay Company's post on Bear island, where services are conducted by visiting missionaries. These Indians appear to take a very active interest in religion.

Characteristics.—The members of this band are a bright, intelligent body and appear to take readily to the mode of living of the whites. They are noted as excellent canoemen, a number being employed by the Hudson's Bay Company for this purpose.

Temperance and Morality.—As no cases of intemperance have been reported to me during the past year, I conclude their conduct has, in this respect, been satisfactory, while morally their conduct has been good, as usual.

I have, &c.,

GEO. P. COCKBURN,

Indian Agent.

PROVINCE OF ONTARIO,
THESSALON AGENCY,
THESSALON, August 12, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report relating to the affairs of the several bands of Indians in my agency for the year ended June 30, 1904.

THESSALON RIVER BAND.

Reserve.—This reserve is situated on the north shore of the North channel of Lake Huron, about six miles east of the town of Thessalon, and contains an area of 2,307 acres.

Tribe.—These Indians belong to the Ojibbewa tribe.

Vital Statistics.—The population of this band is 142, consisting of 30 men, 42 women and 70 children. The numbers remain about stationary, there being a decrease of 1 since my last report.

Health and Sanitation.—The health of these Indians has been good during the year.

Occupations.—These Indians are chiefly employed as labourers on farms, and in loading vessels in summer ; and many of them work in the lumber camps in the fall and winter. The younger people do some fishing for their own use, and the women make baskets and gather berries for sale.

Buildings.—No new buildings have been erected during the year ; but the dwellings they have are kept clean and comfortable. They have a few barns and stables, and at present are not in much need of any more.

Stock.—Their stock is limited. They have a few horses and cows, and some young cattle, pigs and poultry.

Farm Implements.—They have a few ploughs and harrows, but most of their cultivation of the soil is done with spades, shovels, hoes and hand-rakes.

Education.—There is a school-house on the reserve, but it remains closed owing to the lack of interest taken by most of the parents in education. Several of the young people are attending the neighbouring public school and are doing well.

Religion.—These Indians are all Roman Catholics and are regularly attended by a visiting missionary. They appear to take a considerable interest in their religious instruction, more particularly since the completion of their new church over a year ago.

Characteristics and Progress.—These Indians are law-abiding and industrious, and are generally improving in prosperity, and in their clothing and civilization.

Temperance and Morality.—These Indians are not addicted to the use of intoxicants ; in fact it would be difficult for them to get intoxicating liquors, and they are, generally speaking, a moral community.

MISSISSAGI RIVER BAND.

Reserve.—This reserve is situated on the east side of the Mississagi river and on the north shore of the North channel of Lake Huron, and comprises an area of 5,636 acres.

Tribe.—The Indians of this band are of the Ojibbewa tribe.

Vital Statistics.—The population of this band is 162, consisting of 27 men, 49 women and 86 children.

Health and Sanitation.—The health of many of this band is not satisfactory. A few of them have scrofula and kindred diseases, and several are afflicted with consumption. They keep their habitations clean and orderly.

Occupations.—These Indians are mostly labourers and work in the lumber camps in the fall and winter. In the summer they are employed in the saw-mills near the reserve and in loading lumber vessels, and earn good wages. The women and children gather berries and make baskets for sale and realize some money.

Buildings.—For the most part their dwellings are log, in a fair state of repair and comfort, and the few stables and outhouses they have are of little value.

Stock.—They have only a few horses, and a few cows, and some young cattle, poultry and pigs.

Farm Implements.—They have one plough, a couple of harrows and a lot of spades, hoes and rakes, and they have a few driving-sleighs.

Education.—There is a school-house on the reserve, but the attendance of the children is not good. The parents do not seem to take much interest in education.

Religion.—These Indians are all Roman Catholics, and they obtain their religious instruction from a visiting missionary.

Characteristics and Progress.—This band is, generally speaking, industrious. The members are well clothed, and dress with care, and have an earnest desire to be considered respectable people.

Temperance and Morality.—They are a temperate community, but some of them are not moral, owing largely, it is believed, to the reserve being adjacent to large lumber mills.

SERPENT RIVER BAND.

Reserve.—The reserve lies east of the mouth of the Serpent river, and is bounded on the south and west by the North channel of Lake Huron, and on the north by the Serpent river, and contains 27,480 acres.

Tribe.—These Indians are of the Ojibbewa tribe.

Vital Statistics.—The population of this band is 123, there being 23 men, 29 women and 71 children.

Health and Sanitation.—The health of these Indians has been good during the year ; 2 very old people and 3 young children accounting for the deaths.

Occupations.—These Indians are labourers, working mostly in the saw-mills on the reserve in the summer, and in the lumber camps connected with the saw-mills in the winter, and earn good wages. They cultivate plots of vegetables, and the women and children gather berries for sale.

Buildings.—About one-half of the dwellings are a good class of frame, and an extra good one has been added to the list during the year. The remainder of the dwellings are a good class of log buildings and all are kept in good repair and clean and neat. They have few outbuildings and little use for them.

Stock.—They have a few horses, mares and colts and a few pigs and some poultry, and they express a strong determination to acquire more in the near future.

Farm Implements.—They have a few ploughs, and sufficient shovels, spades, hoes, and rakes, for their requirements.

Education.—They have an excellent school and a good teacher ; and the parents seem to take a lively interest in education.

Religion.—These Indians are Roman Catholics. They have a nice church, and they appear to take an interest in religious instruction.

Characteristics and Progress.—They are a happy, contented, law-abiding, industrious and progressive people.

Temperance and Morality.—They are temperate, abstaining from intoxicants, and are moral in their habits and conduct.

SPANISH RIVER BAND.

Reserve.—This reserve is situated on the north shore of the North channel of Lake Huron, along the south bank of the Spanish river. It is bounded on the south and west by the waters of the said North channel and on the north by the Spanish river, and contains 28,000 acres. As to residence, this band is divided into three communities. Two of these are dwelling on the reserve and are in my charge, viz., at Sagamook, a beautiful point running out into the North channel, and on the left bank of the Spanish river in the easterly end of the reserve. The third community is on Manitoulin island under the jurisdiction of Indian Agent Sims.

Tribe.—These Indians are of the Ojibbewa tribe.

Vital Statistics.—The population of these two communities is 322, consisting of 61 men, 75 women and 186 children.

Health and Sanitation.—These Indians have continued healthy during the year; and, as is their custom, keep their habitations clean and tidy.

Occupations.—Many of these Indians are employed as farm-hands, and many as ordinary labourers ; a few follow hunting and fishing for a living. The women and children gather berries and make baskets for sale.

Buildings.—This band has exceptionally good buildings and outbuildings, all of which are kept in a good state of repair; but no new buildings have been erected during the year.

Stock.—This band has a very good assortment of stock, which comprises horses, cattle, pigs and poultry, and there has been considerable improvement in this respect during the past year.

Farm Implements.—They have a few ploughs and harrows and a lot of hoes and rakes, all indeed that they need for the cultivation of their gardens.

Education.—They have a very good school at Sagamook, very well attended, and the best school in my agency. The school at Spanish River has not been well attended by the children during the past year.

Religion.—Those of the band designated No. 1, at Sagamook, are nearly all Roman Catholics, and those of the band designated No. 2, at Spanish River, are nearly all Anglicans.

Characteristics and Progress.—These Indians are industrious, peaceful and law-abiding, and have made some progress in their improvement in habits and manners. They are well clothed and make a comfortable living.

Temperance and Morals.—They are a temperate people—I might almost say total abstainers, and they are a moral people, I am led to believe.

I have, &c.,

SAMUEL HAGAN,

Indian Agent.

PROVINCE OF ONTARIO,
WALPOLE ISLAND AGENCY,
WALPOLE ISLAND, September 8, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to transmit my annual report on the Chippewas and Pottawattamies of Walpole island for the year ended June 30, 1904, together with a statistical statement for the same period giving the census returns of both bands

taken in the months of August and September, showing the increase and decrease in the population and progress in agriculture and other industries whereby the Indians make their living.

Health and Sanitation.—The Indians have been generally healthy during the year, no epidemics having appeared among them. The Indians are giving a good deal of attention to cleanliness in and around their premises by frequent airings of the bedding and wearing apparel.

Population.—There has been an increase in the Chippewa band of 1, there being now 605. The Pottawattamies have decreased 5 during the year, and now have a population of 181.

Education.—There are three schools on the reserve, taught by native-born teachers. School No. 2 is well attended ; the other two are not so well attended. The parents do not take the interest in education that they should. A number of the larger pupils attend the different industrial schools.

Religion.—There are two churches on the reserve, an Anglican and a Methodist. Divine service is held every Sunday both morning and evening. The Methodist church is filled both morning and evening. The members of the Roman Catholic Church attend divine service at Port Lambton and Algonac, Michigan.

Characteristics and Progress.—Generally speaking the Indians of this reserve are law-abiding and fairly industrious. Most of the young men work among the whites all the year round.

Temperance and Morality.—It is to be regretted that a few of the young men and women indulge in intoxicating liquor, but it is a rare thing to see a middle-aged person under the influence of liquor. There is a chance for improvement in their morality ; the marriage law is not observed as well as it should be.

Agriculture.—The crops are poor this year on account of so much rain and cold weather. There will not be enough for their wants, but they can find all the employment that they want among the whites.

Other Industries.—The women make fancy baskets, for which they have a good market at home, selling to the people of the Uuited States who come to the reserve in large numbers and pay good prices for their wares. The men make bows, arrows, canes and small canoes, which brings them in a large revenue.

Public Improvements.—There is a drainage canal now under construction which, when completed, will be a great benefit to the reserve, not only for drainage purposes, but also as a means of bringing pure water through the centre of the reserve.

I have, &c.,

J. B. McDOUGALL,

Indian Agent.

PROVINCE OF QUEBEC,

ABENAKIS OF ST. FRANCIS,

ST. FRANÇOIS DU LAC, July 15, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the year ended June 30, 1904.

Reserve.—The reserve of the Abenakis of St. Francis consists of several pieces of land situated in the seigniories of St. François du Lac and Pierreville. Its total area is 1,819 acres and 52 perches. The portion of the reserve inhabited by the Indians is designated by the No. 1,217 on the official plan of the parish of St. Thomas de

Pierreville and contains 1,228 acres. The village is situated on the bank of the St. Francis river, about six miles from its mouth on Lake St. Peter. It has a very picturesque site.

Tribe.—The Indians of this tribe call themselves the Abenakis of St. François de Sales.

Vital Statistics.—This band is composed of 327 persons, consisting of 79 men and 86 women over twenty-one years of age, and 81 boys and 81 girls under that age. There were during the year 19 births and 11 deaths.

Health.—There has not been any contagious disease or epidemic during the year.

Occupations.—The principal occupations of the Indians are basket-making and fancy-work. They make baskets all winter, and about the month of June most of the families go to the sea-side resorts in the United States, especially to the Atlantic coast and the White mountains, as well as to resorts in the province of Ontario, to sell their wares. They return in autumn. This business is their chief source of revenue. There are also some families that hunt as well as sell baskets ; but the number of those that follow this pursuit is diminishing each year more and more, in proportion as game becomes rare.

Agriculture is only a secondary occupation among the Abenakis of St. Francis. Some of them even do not farm at all ; others raise some vegetables, such as potatoes, corn, &c. Some families cultivate a little more, but the sale of their baskets, which compels them to be absent during the greater part of the summer, prevents them from giving to agriculture the required attention.

The Abenakis own some horses, a large number of good cows, and some pigs. They have very few farm implements.

Education.—The education of the children receives much attention. Most of the Indians can read and write and a good many of them have taken a course at college or at some other higher institution of learning. There are two schools on the reserve: the Protestant school under the direction of Rev. H. O. Loiselle and the Roman Catholic school under the direction of the Grey Nuns.

Last autumn a wing was added to the Roman Catholic school and this building forms now a pretty little convent under the direction of four Sisters. These two schools are well conducted, providing an excellent education for a large number of children.

Religion.—The Abenakis belong to various religious faiths : two hundred and twenty-eight are Roman Catholics, eighty-seven are Anglicans and twelve are Adventists.

Characteristics and Progress.—The Abenakis as a rule are hard-working and industrious. The making and sale of baskets brings them enough money to permit them to live comfortably, and some of them are very rich. Each family returns in the fall with a pretty good sum, and if they were more economical and less improvident, they might put money aside for a rainy day. However, several of them have built large comfortable houses for themselves, and the village presents a very pretty aspect.

Temperance and Morality.—There has been very little disorder caused by the use of liquor, and the conduct of the Abenakis is in general, good.

General Remarks.—These Indians are as civilized as the white people of the surrounding district, and live in harmony with the latter. Very few of the members of this band are pure-blooded Indians, all have more or less white blood in their veins. Many of them have lost the characteristics of the red man, and it is very difficult for those seeing them for the first time, to recognize them as Indians. Nearly all of them speak English and French, and use one or other of these languages in their dealings with white men, but in the family and in their meetings and council they speak Abenakis, which they preserve with religious care.

I have, &c.,

A. O. COMIRE, M.D.,

Indian Agent.

PROVINCE OF QUEBEC,
ALGONQUINS OF RIVER DESERT,
MANIWAKI, September 13, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the year ended June 30, 1904.

Reserve.—The Maniwaki reserve is situated on the River Desert at its confluence with the Gatineau river, and contains an area of 44,547 acres and 26 perches. The reserve is remarkably well situated for navigable streams, and is almost completely surrounded by water, the Eagle river forming a greater part of its western boundary, the Desert river on the north and the Gatineau river on the east. These, with the Big and Little Cedar lakes, the Bitobee and their tributaries, all combine to make Maniwaki an exceptionally picturesque and beautiful township.

Tribe.—The Indians of this band belong to the Algonquin tribe.

Vital Statistics.—This band is composed of 386 persons, consisting of 98 men and 105 women over twenty-one years of age, and 81 boys and 102 girls under twenty-one years of age. During the year there were 10 births and 11 deaths, and 1 woman entered the band by marriage. The causes of death were: 4 of consumption, 1 of cholera, 1 of pneumonia, 1 by drowning, 1 of old age, 1 of typhoid fever, 1 of measles and 1 of infantile disease.

Health and Sanitation.—There was an epidemic of measles last spring among the Indians. Luckily it did not spread to any great extent. Otherwise the health of the Indians has been fairly good.

Occupations.—The principal occupations of the Indians are shantying, driving, and hunting. Some of them farm and lumber on their own account, others make canoes, snow-shoes and axe-handles, and the women make baskets, mittens, moccasins, and other handiwork.

Agriculture.—There has been very little progress in farming among the Indians during the past year, money being too easily earned at other occupations; their services being greatly in demand by surveyors, explorers and sportsmen.

Buildings, Stock and Farm Implements.—There has been very little change in stock during the year. Cattle have been raised and sold, but the number on hand is about the same. One horse died and one was sold, also one colt was sold.

There was only one new building—a dwelling-house—erected on the reserve during the year; and one threshing-machine and buggy purchased during the year.

Education.—There are three schools on the reserve, but only one in operation. The attendance of the pupils is falling off considerably on account of some families moving away from the vicinity of the school, and in other cases the children growing up. The teacher, Miss Annie O'Connor, is doing everything possible for the advancement of her pupils.

Religion.—The Indians of this band are all Roman Catholics, and attend the Oblate Mission at Maniwaki.

Characteristics and Progress.—There has not been the same progress in farming this year as last year, the Indians being inclined to take advantage of the more ready means of earning.

Temperance and Morality.—The Indians of this band are much addicted to drinking intoxicants. Although a great deal has been done during the year and heavy fines imposed, the evil is by no means stamped out.

The morals of the Indians have been fairly good for the past year, and with two schools running, in the future I expect good results, as those who have attended school are much better than those who could not.

I have, &c.,
W. J. McCAFFREY,
Indian Agent.

PROVINCE OF QUEBEC,
AMALECITES OF VIGER,
CACOUNA, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to transmit my annual report accompanied by statistical statement in respect to the Amalecites of Viger for the year ended June 30, 1904.

Reserve.—This reserve is situated on the shore of the St. Lawrence river, near the village of Cacouna, but most of the Indians are scattered over various counties, so that it is difficult to take a census of them.

Vital Statistics.—There are 103 Indians on the reserve. There were no births nor deaths this year.

Health and Sanitation.—The health of these Indians is fairly good, except in the case of some who are old. Sanitary precautions are well observed.

Occupations.—The principal occupation of these Indians is the making of baskets, snow-shoes and fancy wares; these last are made by the women and sold to tourists during the summer. The men do a little fishing and hunting ; they also make snow-shoes in winter. Most of them are very poor. The government grants them a little assistance, especially the widows, and they certainly are very thankful, for it is a great act of charity to relieve these unfortunate people. Some families, I believe, cultivate land in the valley of the Metapedia, but their progress is slow. I believe this is due to their poverty, and I think they are more easily discouraged than the whites.

Education.—The children go to school and to the convent at Cacouna, but there are not many on the reserve. As to the Indians scattered through the different counties, I am told they attend school fairly well.

Religion.—As far as I know, the Indians are all Roman Catholics.

Temperance and Morality.—With rare exceptions, temperance is well observed. The morality of these Indians, especially the women, is excellent.

I have, &c.,
EDOUARD BEAULIEU,
Indian Agent.

PROVINCE OF QUEBEC,
HURONS OF LORETTE,
JEUNE LORETTE, August 23, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to transmit my annual report in regard to the Huron tribe of Lorette and other Indians settled in my agency, with a statistical statement, for the year ended June 30, last.

Reserves.—The Huron tribe still owns three reserves as follows :—

1. The reserve of the village of Lorette, containing thirty acres, where most of the Indians reside, near their ancient chapel, which always attracts the atention of strangers.

2. The Quarante Arpents reserve, containing 1,352 acres. The surrender of this reserve to the Crown will soon be an accomplished fact. This reserve was originally

given to the Huron Indians for the purpose of enabling them to obtain timber for building and fuel required for their use, but now, as it does not bring them in any profit, advantage or interest, as the timber has been taken off it, I believe that the sale of it in lots will be of benefit to the band.

3. The Rocmont reserve, in the county of Portneuf, containing an area of 9,600 acres, which was worked under license grantd to Mr. Henry Atkinson for the timber on it, but which is not so any longer, as this license was not renewed, and as the Indians have surrendered the same to the Crown for the purpose of sale.

Vital Statistics.—Since my last report the population has decreased by 1. During the year there were 8 births and 9 deaths, which makes the population 455. To this number must be added the Indians of other tribes found in my agency, which includes the counties of Quebec, Portneuf, Montmorency and Charlevoix.

At St. Pierre de Charlesbourg, county of Quebec, there is a family of Amalecites, composed of nine persons, the head of which is employed as game warden by the Quebec government.

Twelve Abenakis also reside in the county of Quebec. Their chief occupation consists in the manufacture of Indian fancy wares, by which they make a living.

The Abenakis of St. Urbain lead a miserable life. Abbé G. A. Girard, curé of the parish in which they reside, is very attentive to their needs, and always ready to notify me of their condition when necessity arises. Some of these Indians receive every year assistance and seed-grain from the department.

The combined population of these four groups is 513.

Occupations.—There is again this year plenty of progress in the special industry of the Hurons. The trade in moccasins and snow-shoes is flourishing. This year there is much more demand than last year, and nearly all the families in the band have remained in the village. Fancy wares, as well as moccasins and snow-shoes, have been in great demand ; so that it can be said that these various sources of revenue have been fairly remunerative for the Hurons.

I have observed this year that the number of tourists visiting the lakes in the region of Lake St. John is somewhat smaller than last year. However, those who come always encourage the Indians of Lorette, whose skill they admire.

Health and Sanitation.—The sanitary condition of the band in general is always very good. There has not been any epidemic, and the cleanliness of the village contributes much towards this state of affairs.

Education.—The Indians are satisfied with the teaching given to their children by the Sisters, and they have a right to be proud of the education afforded their children. The Sisters do their utmost for the children committed to their charge, and nothing but praise is due to them. Nevertheless, I observe the children leave school too soon. As soon as they have made their first communion, that is to say, arrived at the age of eleven or twelve, the parents neglect to continue to send their children to school. This is an anomaly for which the parents alone are responsible; but their indifference in regard to their children has the result that the latter are unable to take any position that requires a certain degree of education.

Religion.—As I said in my report for last year, with the exception of four Hurons of Lorette, one of whom is an Anglican and the three others Presbyterians, the Indians of my agency profess the Roman Catholic religion. There is only one church on the reserve ; it is Roman Catholic.

Temperance and Morality.—No serious reproach can be made against the Indians of my agency in regard to morality. They are respectable people and know how to conduct themselves. The same praise cannot be given them in respect to temperance. In addition to the occasions that tempt them to take intoxicating liquor, some brewers of Quebec send their employees to sell beer to the Indians. I have taken measures to put a stop to the audacity of these brewers, and I hope to succeed.

General Remarks.—The affairs of the band are satisfactory. The Indians are peaceable and seem content with the form of life that they lead.

I have, &c.,

ANTOINE O. BASTIEN,

Indian Agent.

PROVINCE OF QUEBEC,

IROQUOIS OF CAUGHNAWAGA,

CAUGHNAWAGA, July 20, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to transmit my annual report in regard to the Caughnawaga agency for the year ended June 30, 1904.

Reserve.—The reserve is situated on the south shore of the St. Lawrence river, opposite the town of Lachine, a distance of nine miles from Montreal ; it contains an area of about 12,327 arpents, of which about 4,000 are in timber and underbrush and the rest under cultivation and in pasture. The soil is good and compares favourably with that of the French Canadian parishes surrounding it.

The village is surrounded by quarries, some of which are worked.

Vital Statistics.—The population is 2,074, an increase of 40 for the year. There were during the year 94 births and 54 deaths.

Health.—The health of the Indians has been fairly good. There has been no epidemic among them, but consumption claimed several victims. Hygienic laws might be better observed.

Occupations.—These consist of bead-work, making lacrosse-sticks and snow-shoes, taking rafts down the Ottawa river and on the St. Lawrence river through the Lachine rapids as far as Montreal. Several of them make a good profit selling patent medicines in Canada and the United States. Many are employed by the Dominion Bridge Company, the Wire Works and the Cooper Machine Works at Lachine, and by the Machine and Locomotive Company at Longue Pointe, while others are engaged in building bridges in various parts of Canada and the United States. They are acknowledged to be skilled workmen in all such work. Several are employed as farm-hands by white men at Lachine and at Laprairie.

Buildings.—The Indians at the present time have comfortable houses and buildings of modern style.

Education.—There are two Roman Catholic school-houses, one for boys, with two teachers, and one for girls, also with two teachers. The Protestants also have a good school for boys and girls. The assiduity of the children at school is not generally satisfactory, the parents are a little negligent in this respect, they do not pay enough attention.

Religion.—The large majority of the Indians are Roman Catholics. They have a nice church and two Jesuit missionaries, Rev. Fathers Granger and Melançon. The Methodists also have a chapel, which serves as a school-house. Their missionary is the Rev. Mr. Oke, an Indian from Oka. The Indians show great interest in their religious exercises.

Characteristics and Progress.—Several of the Indians are industrious in their work and in their education.

Temperance.—There has not been much progress in this respect, especially among the young men. However, there seems to be a little more caution since the prosecution of three hotel-keepers at Lachine for selling liquor to Indians.

Their morality is generally good.

I have, &c.,

J. BLAIN,

Indian Agent.

PROVINCE OF QUEBEC,
IROQUOIS OF ST. REGIS,
ST. REGIS, June 25, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to transmit my report and statistical statement for the year ended June 30, 1904.

Reserve.—This reserve is situated on the bank of the St. Lawrence river, in the province of Quebec, opposite the town of Cornwall, Ontario, including islands a little below Prescott, Ont., thence down stream opposite the village of Lancaster, Ontario. On the opposite shore is the village of St. Anicet, in the province of Quebec. The reserve contains an area of about 6,887 acres.

Vital Statistics.—The population consists of 302 men, 313 women, and 811 young people under twenty-one years of age, making a total of 1,426. There were 25 births and 15 deaths during the year ; 7 went out by marriage, and 3 came in by marriage, making an increase in population of 6.

Health and Sanitation.—There was no epidemic on the reserve during the year, and the sanitary condition of the Indians' homes has been good.

Occupations.—The principal occupations of these Indians are farming, hunting, fishing, trapping, acting as guides for tourists, running rafts of timber, doing monthly and daily labour with farmers and on railways, also manufacturing lacrosse-sticks and baskets to a large extent.

Education.—There are two schools in operation on the reserve ; one on Cornwall island and the other at St. Regis village. Owing to the parents of the children not taking an interest in sending them to school, the attendance is not large. The schools are well supplied with school material and good teachers.

Religion.—There are two churches on the reserve, a Roman Catholic and a Methodist. The Methodist church is on Cornwall island, and the Roman Catholic in St. Regis village. There are two missionaries, one for each of the denominations mentioned. The Indians are attentive to their religion.

Characteristics and Progress.—The Indians are making fair progress in cultivating their lands and improving their buildings. They are well supplied with farm implements.

Temperance and Morality.—There has been but little change in respect to temperance.

The morality of the Indians is fairly good.

I have, &c.,
GEORGE LONG,
Indian Agent.

PROVINCE OF QUEBEC,
LAKE OF TWO MOUNTAINS AGENCY,
OKA, July 2, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my report for the year ended June 30, 1904.

Reserve.—The reserve of this band is situated on the Lake of Two Mountains, Ottawa river, in the province of Quebec.

Tribe.—The Indians of this band belong to the Iroquois and Algonquin tribes.

Vital Statistics.—The population is 461, consisting of 143 men, 105 women and 213 children under twenty-one years of age. During the year there were 23 births and 9 deaths ; one new family numbering 5 came to the reserve ; a family of 3 left ; making an increase of 16.

Health and Sanitation.—The health of these Indians has been fairly good during the year. Their houses and outbuildings are kept fairly well.

Occupations.—These Indians farm, make staves, baskets, moccasins, mitts and lacrosse-sticks ; many of them work in the shanties and by the day with the farmers.

Education.—There are two schools on the reserve, taught, one by Miss L. A. Carmichael and the other by Miss Hodgson, both of whom have the necessary qualifications to teach successfully. But the laxness of the parents in sending their children to school constitutes the greatest obstacle to success. This year, however, some of the children have made fair progress.

Religion.—The Methodists worshipped this year in a small church which they have recently built and which is very comfortable. The Roman Catholics go to the parish church. These Indians take great interest in their spiritual affairs.

Buildings.—Some of the Indians have fairly comfortable buildings, but the majority among them have poor ones. There are several who farm but have no barn, which occasions much loss to their crops. This is due to the poverty of the Indians.

Stock.—The majority of these Indians have good stock, including horses and milch cows. These Indians are beginning to understand the dairy business ; several of them take their milk to the creamery.

Temperance and Morality.—This year several of these Indians took to drinking, amongst others the young men who came in from the shanties. During the year I instituted six actions for the sale of liquor to the Indians ; most of these resulted in convictions. This did a great deal of good in several families.

Most of these Indians observe the laws of morality.

I have, &c.,

JOSEPH PERILLARD,

Indian Agent.

PROVINCE OF QUEBEC,
MICMACS OF MARIA,
MARIA, July 9, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my report for the year ended June 30, last, as well as statistical statement in regard to the affairs of the Micmacs of this agency.

Reserve.—The reserve is situated on the shores of a magnificent river, the Great Cascapedia, and of Chaleur bay. This reserve has a beautiful aspect. It contains 416 acres, 136 of which is under cultivation; the rest is covered with young trees. Nearly the whole of the land is cultivatable and has a fairly fertile soil.

Vital Statistics.—The population is only 92 this year, there having been a decrease of 13. There were 2 births and 2 deaths.

Health.—There was no contagious disease this year and the Indians enjoyed fairly good health.

Occupations.—My Indians have many means of making a living ; they do a little farming, hunting and fishing. Sportsmen looking for salmon-fishing employ them as

canoemen on the Great Cascapedia. Some of them work in the shanties in the neighbourhood, and at stream-driving in spring. Others are employed by farmers or work at home making snow-shoes, snow-shovels and baskets of all kinds, or in tanning green skins with which they make a great number of shoepacks for winter wear. These articles afford them their chief source of revenue.

Buildings and Farm Implements.—With the exception of four or five which are good, their houses are of small value.

Their farm implements are also few and not of much value.

Education.—There is a good school on the reserve, where the children who attend regularly receive good instruction. The pupils learn English passably well; French is also taught. Unfortunately too many of the parents too often neglect to send their children to school.

Religion.—All the Indians of my agency are Roman Catholics and attend to their religious duties well. Converted by the first missionaries to the country, they have always remained faithful to their religion.

Characteristics.—The Micmacs are generally very skilful and industrious; but although they earn much, they are always poor, owing to their lack of economy and to their improvidence.

Temperance and Morality.—The Indians of my agency are generally intemperate, even the women. Under a strict and continued watchfulness they will commit disorderly acts; but the presence of the constable and the lock-up built recently in the centre of the reserve is a powerful hindrance, which generally prevents them from indulging in drunkenness.

Their morality is good.

I have, &c.,

J. GAGNE, Priest,

Indian Agent.

PROVINCE OF QUEBEC,
MICMACS OF RESTIGOUCHE,
POINTE À LA GARDE, July 26, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Location.—This reserve is situated on the north side of the Restigouche river, in the township of Mann, in the county of Bonaventure, opposite the town of Campbellton, N.B.

Tribe.—These Indians are all of the Micmac tribe with the exception of one who is an Abenakis.

Vital Statistics.—The population of this band is 486. During the past year there were 25 births and 21 deaths and 11 left the reserve, making a decrease of 7 since last year.

Health and Sanitation.—The health of this band has been fair; sanitary measures are well observed. These Indians are clean in their habits and dwellings.

Occupations.—The principal occupations of these Indians are agriculture, lumbering, ship-loading, stream-driving, working in the mills, and acting as guides for tourists, at which they get good pay. Some are employed as game wardens. A few of the old people make baskets, snow-shoes and fancy-work.

Buildings.—The buildings are for the most part fairly good ; there are some very good houses, with good furniture. Some have also very good barns.

Stock.—These Indians own a good many horses, which they use well, also a good many cows, young cattle and pigs.

Farm Implements.—They have not in general many farm implements, but a few of them are well supplied with them.

Education.—The education of the children receives much attention. The school is under the direction of the Reverend Sisters of the Holy Rosary, who have already made good progress with the children who have attended regularly. Unfortunately there is carelessness with respect to regular attendance, in spite of the encouragement given them by the Reverend Father, the teacher, the chief and myself. I am glad to say that there is some improvement, the attendance being better than last year.

Religion.—All the Indians of this reserve are Roman Catholics ; they are very attentive to their religious duties. The Reverend Capuchin Fathers take a great interest in them. They are about completing a very fine stone church, the old church being too small. These reverend gentlemen have also completed a good residence for the Sisters who have charge of the Indian school.

Characteristics and Progress.—These Indians as a rule are hard-working, industrious and law-abiding. It is a pity they are not more economical and less improvident, although some of them are getting on well. They have good residences, are well supplied with the necessaries of life, own wagons, buggies, sewing-machines, organs, &c. Of these I might mention Louis Michel, Peter Gray, Isaac Isaac, Polycarpe Martin, Thomas Metallic, Thomas Germain and several others.

Nevertheless there are some very poor, old and sick people, especially widows. The government has given them a good deal of assistance during the winter, which is a great act of charity.

Temperance and Morality.—I regret to say that too many of our Indians are still addicted to strong drink, though there appears to be a little improvement in this respect recently.

In general their morals are fairly good, though with some of them the standard is not as high as might be desired. Some of the white people are solely to be blamed in this connection.

I have, &c.,

J. PITRE,
Indian Agent.

PROVINCE OF QUEBEC,
MONTAGNAIS OF LAKE ST. JOHN,
POINTE BLEUE, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ending June 30, 1904, together with my statistical statement.

Reserve.—This reserve is situated on the northwest shore of Lake St. John, in the county of Chicoutimi, province of Quebec, and about five miles from the village of Roberval. The reserve has an area of 22,423 acres, all in the township of Ouiatchouan, of which 19,525 acres have been surrendered by the band, and part of it sold and part still to be sold for the profit of the band, leaving for the use of the

Indians 2,900 acres. This part of the reserve allotted to the Indians is magnificently situated. From the top of a cliff a few feet from the shore, the view embraces the whole of Lake St. John, around which there are to be seen everywhere flourishing parishes. The monotony of the view is relieved by the daily passage of the numerous steamers comprising the fleet of this inland sea, all of which pass only a few yards from the shore, where the depth of the water is quite considerable. It is life, it is activity, it is modern progress among the whites going on all the time under the eyes of these children of the forest, and this is a constant school of cilivization to them all.

Tribe.—The Indians of Lake St. John are all Montagnais ; there are, however, among them some Abenakis and Algonquins ; a long time ago these latter were adopted by the great Montagnais family, whose customs and manners they quickly followed and whose language they have adopted.

Vital Statistics.—The population of this band is 522; two families came from the regions of the north, numbering 9 persons, and joined the band; the number of births was 31 and of deaths 14. Among the Indians who have gone to that far-away country of the infinite, where they will no longer meet on their journey portages to cross or rapids to run, I regret to mention the names of two very old and very respectable members of the band : François Jourdin, former chief, who died at the advanced age of eighty-six ; he had followed up to his death the old customs of his forefathers. he was an exact type of the Indians of former times ; Charlie Robertson, another old Montagnais, passed away during the course of the year at the age of seventy-five. Although married to a Roman Catholic Indian woman, he belonged to the Anglican Church, of which he was one of the most fervent followers on the reserve. In addition to these, among those that have passed away, there were four adults, including one woman, the rest being young children. During the last twelve months nine couples have been united in the sacred bonds of marriage.

Health and Sanitation.—Nearly all the members of the band have enjoyed excellent health this year, and it affords me real pleasure to know that there has not been a single death from consumption, that disease so fatal and so common among these poor Indians. The reserve was not visited by any epidemic. The whole population—men, women and children—has been vaccinated, and all trace of small-pox seems to have disappeared for ever. The laws of health are beginning to be understood by the Indians, and the chief sanitary regulations are well observed. In the latter respect I believe that some of our Indians are as advanced as a great many persons among the surrounding whites. In spring, as soon as the weather is favourable, the great majority of the inhabitants of the reserve hasten to burn all the rubbish and dirt accumulated during the winter, and all make it a duty to ventilate their houses properly. It is unfortunate, however, that the water from the lake, which the Indians are obliged to drink and to use for cooking during the summer, is not fit for drinking and is full of dirt. This water, during the summer heat, becomes so nearly warm as to produce disgust. It is very difficult, not to say impossible, to remedy this. Springs are rare and the few that are met with are too far from the Indian village to be of use. The medical service of the reserve rendered by Dr. J. Constantin, of Roberval, is excellent, and all the sick Indians have been treated by him with care and diligence.

Occupations.—The great majority of the Indians of this reserve live by the chase. As a rule they leave the village in the month of September, and do not return until June. This year the hunt was generally good, but the price of furs went down more than one-third compared with the prices paid last year for the same skins. In spite of that, nearly all the Indians have paid the debts that they contracted when starting out, and several of them have been able to put away sufficient money to live very comfortably and independently during the summer. A number of other Indians act as guides to sportsmen, and work in the shanties in winter and in stream-driving in spring ; they are very much sought after for this work. Last of all, some of our Montagnais live exclusively on the products of their lands, which they cultivate with care and in the same manner as the most experienced white farmers. The soil is of

first-class quality and suitable for all kinds of crops; wheat, barley, oats, rye, potatoes and other vegetables. The fences between neighbours are well maintained. Altogether the development of industry and agricultural work is advancing.

Buildings.—The houses are sufficiently isolated from each other ; nearly all of them are very suitable and quite comfortable, many and important repairs were made to several buildings during the course of the spring ; some of the Indian houses now resemble in all respects pretty cottages with their large verandas and piazzas as well as on account of their being painted both outside and inside. Three new houses have been built during the course of the year.

Stock.—The quality of the stock has not been much improved this year ; but there is a tendency to buy a better and better class. Several Indian families make butter and it is a product of excellent quality, which they easily dispose of on the reserve itself. Other families also sell milk and cream in considerable quantities. The herds are in good condition, well and regularly cared for. There are also some good horses, and a fact worth mentioning is that in the races open to all the horses in the county of Chicoutimi it was a horse belonging to an Indian of the reserve and raised by him that carried off the greatest number of prizes and that has been considered one of the best trotters in the county.

Farm Implements.—The Indians of the reserve who engage in agriculture are well provided with modern farm implements, of which they make excellent use. They take such good care of them as to ensure their lasting as long as possible.

Education.—The school-house is situated in the centre of the reserve. It is spacious, comfortable, well lighted and well ventilated. The teaching, which is carried on in French only, was done by Mrs. O. P. Dufresne until about the middle of the winter, when illness compelled her to resign. She was immediately replaced by another certificated teacher, Miss Marie Girard, who has been able to keep this school on a good footing. There are one hundred and twenty-nine children of school age. The number of pupils on the roll is fifty-five, which is a very satisfactory figure, considering the fact that many of the children accompany their parents to the hunt in the woods. The average attendance was thirty during the first part of the school year and forty-three during the last six months. In spite of the change of teacher the general progress is satisfactory. Discipline without being severe, though energetic, is well observed. The children who attend school are remarked for their politeness and their good education, both at home and in public.

Religion.—The Indians of Pointe Bleue are all Roman Catholics with the exception of about ten families who belong to the Anglican Church. There are two churches on the reserve, the Roman Catholic under the direction of the Oblate Fathers, and an Anglican under the control of the Archbishop of Quebec. Divine service is conducted every day in the former building and once a fortnight in the latter. Each of the religious denominations has also a cemetery. The Indians of both faiths are fervently attached to their religion, and there must be grave reason to keep them from attending religious services.

Characteristics and Progress.—A good number of the Indians are active, industrious, hard-working and economical ; the indolent and improvident are in the minority. The financial condition of the Montagnais appears to improve year by year and all now seem to understand that it is their duty to pay their debts. I know two or three Indians who have fairly considerable amounts deposited in the savings branch of the Banque Nationale at Roberval. Last Easter an Indian took advantage of a trip to Roberval, where he sold a lot of skins and deposited in the savings bank the sum of one hundred dollars, which he will apply during the course of the summer to the building of a house. The Indians, as a general rule, are more intelligent than one is led to believe and they are not easily deceived by the whites; last fall before going off hunting, an Indian made an arrangement with a workman of Roberval to build him a house which was to be ready for occupation on his return. The Indian having returned sooner than was expected, the house was not yet finished. He watched the

workman at his work during these last days, when, in the frame of the building he saw an opening caused by two boards not properly joined. 'That will not be warm,' he said to the carpenter, 'it is badly done.' The workman annoyed at this remark asked him in a mocking manner what he knew about the work. 'I do not know much about your trade, it is true,' retorted the Indian, 'but when I see a hole I know well that it is a hole.' Several members of the tribe can read, write and speak both French and English. General and marked progress is shown every year.

Temperance and Morality.—Whisky ! That is the only and real enemy of public order, peace and tranquillity and the cause of the violation of the law on the reserve. When sober the Montagnais are excellent citizens in all respects. Unfortunately a great many of them are addicted to alcohol, and more unfortunately still the latter always know how to meet at the house of white men, low creatures without conscience, who, for the sake of making a few cents, are always ready to supply their wants and that in the greatest contempt of the law. These persons, without feeling, cannot know what they do, or they would act otherwise. Alcohol kills the Indian; it makes him contract incurable diseases that kill him when he is still in the flower of his age. A few glasses of whisky are sufficient to rouse in the Indian his real savage instincts. After having tasted this liquid, poisonous for him, he must have some more, and he cannot assuage his thirst until he reaches the point of losing his senses; the passion seizes him and leads him to all possible excesses. So it was with joy, with pleasure, that I saw the department take rigorous and energetic measures in sending to the region of Lake St. John last summer a Dominion police constable to perform secret service in order to discover more certainly the distributers of alcohol to the Indians. The result of this campaign has been very fruitful. Effort has been made to get at the root of the evil and success has been attained in great measure. Several white men have been caught in the act and have suffered rigorous but well merited punishment. May the hard lesson that has been given them be salutory and serve as an example to those who would be tempted to imitate them in this nefarious business ! Magnificent results have been attained, but we cannot rest on the success attained ; a war to the finish and without mercy must be carried on against these contemptuous violaters of the law. The ranks of this army of assassins have been cleared out, but there are still some of them who must be got rid of.

Cases of immorality are rare, and when they do happen they are always due to the abuse of liquor.

Loyalty.—Our Indians love their King and native land. Last summer a whole company of the 18th Regiment of Saguenay was recruited among the Montagnais of Pointe Bleue and put in its military service at the camp at Three Rivers. I have learned with pleasure that all these Indian volunteers conducted themselves excellently and were remarked by all their superior officers for their soldierly qualities. Like old troopers they easily complied with all the requirements of the discipline and regulations of the Canadian militia. I have observed that military exercises have done great good to these Indians in opening a new horizon in the development of their intelligence. They learnt down there in the camp that they had to submit to discipline, to the regulations and the laws established by authority. They learnt, moreover, that they ought to love their country, and this sentiment is so well inculcated in them that in the event of a danger to the native land, I am sure that our Indians would not be the last to respond to the call.

I have, &c.,

ALPHONSE MARCOUX,

Indian Agent.

PROVINCE OF QUEBEC,
MONTAGNAIS OF LOWER ST. LAWRENCE—BERSIMIS AGENCY,
BERSIMIS, August 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the fiscal year ended June 30, 1904, for my agency, comprising the bands residing at Escoumains, Bersimis and Seven Islands.

ESCOUMAINS BAND.

Reserve.—This reserve is situated on the southwest side of Escoumains river, on the north shore of the St. Lawrence, in the county of Saguenay, and comprises an area of 97 acres. The soil is sandy and not very good for cultivation except for potatoes, of which the Indians generally reap a fairly good crop each year. In June this summer the Indians surrendered to His Majesty the King, the right of way for a public road which passes over part of the reserve, to a wharf which is being built in deep water, so that all kinds of vessels will be able to come to this wharf. It is thought by everybody that this will add great value to the reserve, as the site is very nice, fronting on the St. Lawrence.

Escoumains is a very good place for fishing and hunting, whilst there are good roads for driving west to Tadousac, and for thirty miles east to Hamilton Cove, which is a good place for trout fishing. It is expected that tourists will flock there as soon as the wharf is finished, and hotel accommodation provided, which will be in the near future. The Indians of Escoumains, who are all very good guides, will then be employed all summer.

Tribe.—All the Indians of this band are of the Montagnais tribe, with a dash of white blood in their veins.

Vital Statistics.—The population this year is 43, consisting of 11 men, 11 women and 21 children. The increase is due to Indians joining the band.

Health and Sanitation.—The health of this band has been good throughout the year ; their houses and premises are kept clean, in fact they live as far as they can like white people.

Occupations.—The occupations of these Indians are various, such as fur-hunting in winter, planting potatoes in the spring, acting as guides to sportsmen, fishing in summer. Some of the young men sometimes work in the lumber camps of Escoumains in winter, and in the saw-mills in summer.

Education.—There is no school on the reserve, but all can read and write their own language, and all can speak French. In summer-time some of the children attend the school for the whites in the village of Escoumains.

Religion.—All the Indians of this band are Roman Catholics, and attend church in the village of Escoumains.

Progress.—I regret to say that this band, although living better in some respects than Indians of other bands, does not make much progress.

Temperance and Morality.—All the Indians of this band are very temperate, none are addicted to strong drink, all are very moral.

BERSIMIS BAND.

Reserve.—This reserve is situated on the east side of Bersimis river, on the north shore of the St. Lawrence, in the county of Saguenay, and comprises an area of 63,100

acres. There is some good farming land on the reserve, if it were cleared, but the Indians do not care about farming. Within the last two years two or three have planted a few potatoes.

Tribe.—The Indians of this band are all of the Montagnais tribe, but quite a large number have a dash of white blood in their veins, indeed not many are full-blooded Indians.

Vital Statistics.—The population this year is 476, consisting of 115 men, 103 women, and 258 children under twenty-one years of age. The increase in population is due to Indians coming here from Lake St. John and Seven Islands.

Health and Sanitation.—The health of this band is not very good at any time; many are consumptives. Their way of living is the cause of this. So many people live together in the same house that it is almost impossible for them to keep their houses clean. Sick people are to be found on the reserve almost at any time of the year. The Indians cannot understand that their way of living is the cause of nearly all their diseases. The oldest Indian on the reserve died a few weeks ago; he was over ninety years of age.

Occupations.—The only occupations of these Indians are fur-hunting in winter, in summer making their own canoes for their next hunting trip. They also catch some salmon in Bersimis river without much trouble, as the river is a good one for salmon. This year many Indians came out of the bush only in the beginning of July. This year the Indians will not make as much as usual with their hunt, as the prices of raw furs have fallen nearly one half. The prohibition of beaver is also a great hindrance to the Indians making good hunts.

Education.—There is a good school on the reserve conducted by two nuns, and all the children attending school regularly are making fair progress; but a great number of children cannot attend school, being at Bersimis only a couple of months every year and just at the time the school is closed for the holidays.

Religion.—All the Indians of this band are Roman Catholics. They have a very nice little church. The services are conducted by three Roman Catholic missionaries who reside at Bersimis.

Progress.—I cannot say that they are making much progress, they think of nothing but making a good hunt, and of spending their money as quickly as possible.

Temperance and Morality.—I am sorry to say that the greater number of this band cannot understand that the use of intoxicants is the cause of many of their troubles, although I must say that this year they have behaved far better than usual. Whisky traders are not so plentiful here this summer as in the past, they are afraid of being caught, hence the Indians have to keep quieter. As to morality they compare favourably with other bands.

SEVEN ISLANDS BAND.

Reserve.—A reserve was surveyed for this band last summer.

Tribe.—All the Indians of this band are of the Montagnais tribe, and like the other Indians of my agency, a great many have white blood in their veins.

Vital Statistics.—The population of this band is 377.

Health and Sanitation.—The health of the members of this band has been fairly good this year. Their houses, some of which are very good, are kept clean, as also their premises.

Occupations.—The only occupation of this band is fur-hunting.

Education.—These Indians have no school on the reserve. Some of them can speak both English and French.

Religion.—All the Indians of this band are Roman Catholics, and have a church for their own use.

Temperance and Morality.—A great number of the Indians of this band are addicted to intoxicants, which they can easily procure, there being so many traders who carry whisky that the Indians generally can get as much as they want, although

I must say that the fines imposed on white men and Indians alike last summer seem to have had a salutary effect. In other respects they are fairly moral.

I have, &c.,
ADOLPHE GAGNON,
Indian Agent.

PROVINCE OF QUEBEC,
MONTAGNAIS OF THE LOWER ST. LAWRENCE—MINGAN AGENCY,
MINGAN, August 26, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904. The statistical statements will be forwarded later, as they are not quite completed. This report will reach you somewhat earlier than last year. Owing to the number of Indians in this agency, and their living during the summer along the coast anywhere for a distance of 300 miles, it is not an easy matter to visit them all and have my report earlier in the year. By the time I have visited the different places in the agency and met the Indians, previous to their departure for the interior, it is generally the end of August, and although this report has been ready some time, on our return from St. Augustine, having missed the mail steamer that trip, I have been obliged to wait for the next, due now.

Reserves.—In this agency, which includes Mingan, Natashquan, Romaine, and St. Augustine, and extends a distance of three hundred miles east of here to the Strait of Belle Isle, there has never been any special reservation of land made for the Indians at the above places ; when they arrive from the interior they generally camp near the Hudson's Bay posts, which has always been the custom.

Tribes.—All the Indians in this agency belong to the Montagnais tribe.

Vital Statistics.—At Mingan the band consists of thirty-nine families, a total of 236 individuals ; the number of births during the year has been 6 and deaths, 3 young children under one year and 2 adults, this shows an increase of 1.

At Natashquan the band consists of eighteen families, with a total number of 72, an increase of 3 this year ; births have been 7, deaths, 2 adults and 2 children under one year.

At Romaine there are thirty-nine families, numbering 157, an increase of 3 ; births have been 8, deaths, 3 adults and 2 children under one year.

At St. Augustine, the band consists of fifty-two families, a total of 198, the increase being 4 ; during the year there have been 9 births, and 5 deaths, three children of from two to four years and one adult. The increase is not much, but they generally more than hold their number, except when some epidemic passes among them, they are all and have been in excellent health this year, which is owing to a very great extent to their having been obliged to give up the use of intoxicating liquor for the last two years, the usual traffic in liquor which was the rule in former years being stopped, no where on this agency has an Indian been seen intoxicated or under the influence of liquor during the year, and I have reason to believe that none has been made use of by any Indian under my supervision within the year just closed. They all see how much better they are without it, and I do not expect to have any further trouble in this connection in future : since the severe sentences imposed on a number of these liquor-sellers last season, they have given up the business, and the Indians are quite satisfied that it should be so, as they know that no person will risk selling any to them,

these persons have been warned that if again caught selling liquor to Indians, they will be fined and imprisoned.

Health and Sanitation.—The camps and houses at each place are kept clean, and in a healthy condition, and improvement in this respect is noticeable from year to year.

Resources and Occupations.—The members of these bands are fur-hunters, hunting being their only means of making a living. They have not done so well as last year, the number of skins taken being less, and prices realized much less ; the prices paid this year are from forty to fifty per cent less than last, owing to the heavy decline in value of all kinds of furs, in comparison with prices which have prevailed for some time past ; many of them in consequence who do business with the Hudson's Bay Company at the several places mentioned above, have been unable to pay their accounts.

They did not suffer for want of food during the winter while in the interior, having been successful in killing deer in sufficient numbers to keep them from want.

Owing to the heavy decline in the price of furs, and failure of hunt, the Hudson's Bay Company, and others on the coast dealing with the Indians, have during the present season been obliged to reduce the outfits given them, but they have come through the summer well, and have been able to live fairly comfortably while on the coast. The majority of them have now left for the interior, most of them left early in August, and are not likely to return to the coast till May or June next year ; a few old persons who are unable to follow the others, as usual remain out, around or near the posts during the winter ; these are well looked after, and do not suffer from want.

Buildings.—There are twelve nice comfortable houses owned by the Indians here, and several others under construction, which will be finished next year. Many of these are well furnished, and look quite neat with the outbuildings, all well painted in bright colours. Except here, and one each at Natashquan and St. Augustine, there are no other houses owned by Indians in the agency.

Stock and Farming.—No stock of any kind is kept by the Indians, nor do they attempt any kind of farming, except one half-breed, at Mingan, who has a small plot of potatoes each season. He, however, is not a hunter, and thus has time to attend to them. The land is not suitable for cultivation, nor would their mode of life permit them to undertake any kind of farming in the agency.

Education.—There are no schools, their only means of instruction being during the annual visit of the missionary, which lasts two weeks at each place.

Religion.—All the Indians belong to the Roman Catholic Church, and show much attention to matters pertaining to their faith. There are two churches in use in this district, one at Mingan, and a new one at Muskwaro, finished last year.

Characteristics and Progress.—There are not many changes to note, except practically no liquor being made use of by any of the Indians ; no prosecutions have been taken against anyone this season for selling liquor, or supplying other intoxicating liquids to Indians. There were several persons who were accused last year of having done so, but there was not time to take these up then, and this year we could not get sufficient proof to convict this season, and in future they are not likely to offend in this way again.

Temperance and Morality.—These Indians, not coming in contact with the whites much, are very moral, and especially so among themselves, a case of immorality among them being seldom or never heard of.

I was again successful this year in preventing any liquor being consigned direct to Indians, by steamer or vessels from Quebec ; this was one of the ways by which large quantities were obtained by them formerly.

I have, &c.,

W. D. B. SCOTT,
Indian Agent.

PROVINCE OF QUEBEC,
TIMISKAMING AGENCY,
NORTH TIMISKAMING, September 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report of the Timiskaming band for the year ended June 30, 1904.

Reserve.—The Timiskaming reserve is situated on the north bank of the river Quinze at the head of Lake Timiskaming, county of Pontiac. It formerly comprised an area of 38,400 acres, but 23,046 acres have been surrendered, leaving 15,354 acres for the use of the band. Of the above quantity the Indians have located 3,270 acres.

Tribe.—The Indians belong to the Algonquin tribe, though a large percentage of them to have an admixture of Scotch blood.

Vital Statistics.—The population of the band is 220, consisting of 46 men, 60 women and 114 children. During the year there were 8 births and 1 death, and 1 joined the band through marriage, making a total increase of 8 during the year.

Health and Sanitation.—The health of the band has been better than for years past, sanitary measures are tolerably well observed.

Occupations.—The principal industries engaged in by the greater part of the band are agriculture, acting as guides to tourists or sportsmen in the summer, working in lumber camps during winter and on timber drives in spring. A few of the Indians build canoes for sale ; others do some trapping, but fur-bearing animals are becoming scarce in the immediate vicinity.

Buildings.—There have been no buildings erected during the year, but some improvements have been made to some already erected.

Stock.—There has not been much change in the number or in quality of their stock during the year.

Farm Implements.—The band is very well supplied with farm implements.

Education.—There is one school on the reserve; the majority of the children attend very irregularly, a few not at all. Those that do attend regularly learn tolerably well.

Religion.—The Indians of this reserve are all Roman Catholics, they attend church very regularly. Rev. Father Pian is in charge of the mission here.

Characteristics and Progress.—Some of the Indians are making fair progress, others are doing but little.

Temperance and Morality.—A large majority of this band are very temperate in their habits; there are a few individuals that are somewhat addicted to drinking liquor when they can get it, but they are the exception. In morals, there are a few that are not quite what they should be.

I have, &c.,
ADAM BURWASH,
Indian Agent.

NEW BRUNSWICK,
NORTHEASTERN DIVISION,
RICHIBUCTO, July 27, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I beg to submit my annual report and statistical statement for the year ended June 30, 1904.

Location of Agency.—This agency is in northeastern New Brunswick, and embraces all the Indian reserves in the counties of Restigouche, Gloucester, Northumberland, Kent and Westmoreland.

Tribe.—The Indians of this agency all belong to the Micmac tribe.

EEL RIVER BAND.

Reserve.—This reserve is in Restigouche county, about four miles from the town of Dalhousie and about the same distance from the main line of the Intercolonial Railway. It contains 220 acres, of which but a small portion is cleared, the remainder being woodland and bog-land.

Vital Statistics.—The population of this band is 71, an increase of 2 since last year ; there have been 4 births and 2 deaths.

Occupations.—These Indians work in the lumber woods, in stream-driving and in the saw-mills, where they command good wages. They also fish, and manufacture Indian wares. The only attention they give to farming is to plant a few barrels of potatoes and some garden vegetables. They do some hunting. Most of the women beg.

Stock and Farm Implements.—They have no stock or farm implements.

Education.—They pay no attention whatever to education.

Characteristics and Progress. They are not making much progress.

BATHURST BAND.

Reserves.—These Indians have two reserves, one, the Pabineau reserve, seven miles from the town of Bathurst, and the other, St. Peter's Island, about half a mile from the town, both in the county of Gloucester. The Pabineau reserve contains about 1,000 acres, chiefly woodland. Formerly all the Bathurst Indians lived on this reserve, but they have nearly all moved off, some settling on St. Peter's island and others on the mainland adjoining, near the town of Bathurst. The island contains 16 acres, mostly cleared land. It is separated from the mainland by a passage about half a mile wide.

Vital Statistics.— The population of this band is 31, an increase of 3 for the year ; there have been 4 births and 1 death.

Occupations.—These Indians live by fishing, manufacturing and selling Indian wares, and by working in the woods and lumber mills. They do a little farming and the women engage in begging.

Stock and Farm Implements.—They have no stock or farm implements.

Education.—They pay no attention to education.

Characteristics and Progress.—They are not making any progress.

BURNT CHURCH BAND.

Reserve.—This reserve is situated on the north side of the Miramichi bay, about 30 miles from the town of Chatham. The shore is at this point high and the reserve pleasantly located. It contains about 2,058 acres. The Indians occupy about 250 acres ; the remainder is covered with woods and bushes. There is some timber.

Vital Statistics.—The population of this band is 215, a decrease of 3 since my last report ; there have been 10 births and 13 deaths during the year ; one Indian woman from this reserve married and removed to Restigouche and one of the Eel Ground women married and moved to this reserve. Of the total population there are 62 men and 51 women. There are 52 children of school age on the reserve.

Occupations.—These Indians chiefly engage in fishing. They also do some farming and manufacture Indian wares.

Stock and Farm Implements.—Not more than a dozen of these Indians have any stock or farm implements.

Education.—There is a school-house on this reserve and the school has been kept open for several years past. Many of the younger Indians can read and write, and more interest is taken by them in education than in former years.

Characteristics and Progress.—A few of these Indians are progressing, but the greater number have not made much progress of late years. Many of them are industrious, but sickness has kept them back.

EEL GROUND BAND.

Reserve.—This reserve is situated on the north bank of the northwest branch of the Miramichi river, Northumberland county, about six miles above the town of Newcastle. It contains 2,682 acres, about 225 of which are cleared, the remainder being wood and timber land. The soil is fertile.

Vital Statistics.—The population is 153, an increase of 5 since last year ; there were 11 births and 5 deaths during the year ; one woman of this reserve married and removed to Burnt Church.

Occupations.—These Indians all do a little farming and fishing. They also manufacture Indian wares. The principal industry, however, is working in the lumber mills and at stream-driving and in the woods in the winter. Their services are always in demand in lumbering and they command good wages.

Stock and Farm Implements.—Only about a dozen of these Indians have any stock or farm implements.

Education.—The school-building, which was burned about two years ago, has not yet been rebuilt, but the school is still kept in a building rented for that purpose. About a dozen children attend regularly and are making good progress.

Characteristics and Progress.—A number of these Indians continue to progress, but a large number of them are too indolent to make much advance. They are, however, in better circumstances than they were a few years ago.

RED BANK BAND.

Reserve.—This reserve is situated on both sides of the Little Southwest Miramichi river, Northumberland county, about fifteen miles above Newcastle. It is well wooded with soft and hardwood timber, and fire-wood. It contains 6,150 acres. The land near the river is fertile, but in the rear it is poor and stony. The Indians occupy about fifty acres.

Vital Statistics.—The population is 50, an increase of 1. There have been no deaths and only 1 birth.

Occupations.—These Indians engage in farming to a greater extent than the other Indians of this agency. They also lumber and do some fishing and a little hunting.

Some of them engage in guiding sporting parties, fishing and hunting, at which they make good wages.

Stock and Farm Implements.—A number of these Indians have provided themselves with horses, cattle and agricultural implements.

Education.—Very little attention is given to education.

Characteristics and Progress.—These Indians are amongst the most progressive in this agency.

BIG COVE BAND.

Reserve.—This reserve is situated on the north bank of the Richibucto river in Kent county, and contains 2,002¾ acres, a great part of which is fertile land. The Indians have cleared and occupy about 300 acres. The remainder is woodland and a tract of bog-land.

Vital Statistics.—The population of this band is 295, an increase of 4; there have been 20 births and 16 deaths during the year. The Big Cove band is the largest band of Indians in the maritime provinces. There are 84 men and 75 women in the band. There are 66 children of school age.

Occupations.—These Indians all engage to a small extent in farming. They are also expert fishermen, and engage in all kinds of fishing. Many of them leave the reserve in the summer and live in shanties at Rexton, Jardineville and Bass River, where they obtain employment at good wages in the mills and at the wharfs loading lumber. In the winter they return to their reserve. They also engage in the manufacture of Indian wares.

Stock and Farm Implements.—A number of these Indians have provided themselves with horses and cattle and also the more necessary farm implements.

Education.—There is a school on the reserve and many of the younger Indians are learning to read and write. Last term Miss Babain, who had been teaching the school for the past three years, was obliged to give it up on account of ill health. She was succeeded by Miss Isaac, a young lady of the Micmac tribe from Restigouche, Quebec. The Indians are greatly pleased at having a teacher of their own nationality and are consequently taking more interest in education than they formerly did.

Characteristics and Progress.—Some of these Indians are making progress, but the greater number are content to live a hand-to-mouth existence, without taking any thought of the future so long as their present necessities are provided.

INDIAN ISLAND BAND.

Reserve.—This reserve is situated at the mouth of the Richibucto river in Kent county, and contains 100 acres. The land is dry and sandy. About 25 acres are under cultivation, the remainder being covered with small spruce and fir.

Vital Statistics.—The population of this band is 32, a decrease of 1, caused by the death of a member of the band. There were no births during the year.

Occupations.—These Indians engage chiefly in fishing, but they all do some farming. Their reserve is near the sea and they are all expert fishermen.

Stock and Farm Implements.—They keep very little stock and have but few farm implements.

Education.—These Indians take more interest in education than most other Indians of this agency. They have no school on the reserve, but nearly all the children of school age attend a white school in the vicinity. One, an Indian boy, is attending the grammar school of the county at Richibucto.

Characteristics and Progress.—These Indians with few exceptions are industrious and are progressing.

BUCTOUCHE BAND.

Reserve.—This reserve is situated on the north side of the Buctouche river about three miles above the village of Buctouche, in Kent county. It contains about 350 acres, of which about 50 are cleared. The soil is fertile.

Vital Statistics.—The population is 18, the same as last year. There have been no births and no deaths.

Occupations.—These Indians do a little farming, but they chiefly engage in the manufacture of Indian wares and in begging.

Education.—Education is altogether neglected by these Indians.

Characteristics and Progress.—They are making no progress.

OTHER RESERVES.

The remaining reserves in this agency are not occupied by Indians, except Fort Folly reserve, in Westmoreland, on which three Indian families reside. Pockmouche reserve, in Gloucester county, and Tabusintac reserve, in Northumberland county, belong to the Burnt Church band. Pockmouche reserve contains 2,477 acres chiefly woodland growing small pine and spruce and also some bog-land. Tabusintac reserve contains 8,070 acres of woodland and timber-land, growing spruce, pine, cedar, hemlock and hardwoods. Half of the Big Hole reserve, in Northumberland county, belongs to the Red Bank band and half to the Eel Ground band. It contains 6,303 acres, part of which is covered with wood and timber and part with scrub pine. There is a valuable salmon-fishing privilege in connection with this reserve, and also one in connection with the Pabineau reserve, in Gloucester county. Renous reserve contains 100 acres of woodland and belongs to the Eel Ground band. Indian Point reserve also contains 100 acres of woodland and belongs to the Red Bank band. Both these reserves are in Northumberland county. Fort Folly reserve, on the Petitcodiac river in Westmoreland county, contains 62½ acres, only a strip of which along the river is fit for agriculture, the remainder consists of high, stony land covered with spruce bushes.

INDIANS NOT SETTLED ON RESERVES.

There are a number of Indians at Dorchester, Shediac, Painsec, Moncton, Salisbury and other places in Westmoreland county not settled on reserves. They number 68, a decrease of 4 since last year, caused by the death of four of their number. They reside in shanties and live by begging and the manufacture of Indian wares, They have no stock or farm implements, pay no attention to the education of their children, and are making no progress whatever. The three Indian families residing on Fort Folly reserve live in frame houses and do a little farming.

Heath and Sanitation.—The severity of last winter was much felt among the Indians of this agency and there was a great deal of sickness among them. The death-rate was higher than that of last year, chiefly from pulmonary and bronchial diseases. They have been free from epidemics or contagious diseases. In the spring, care was taken on all the reserves to remove the filth and garbage that had accumulated near their dwellings during the winter. Many of them limewashed and disinfected their buildings.

Buildings.—Nearly all the Indians of this agency living on reserves have small frame dwelling-houses. Some of them are small, cheaply built and badly ventilated; but they are much superior to the shanties of those Indians who are not living on reserves. Those who keep stock have small frame barns. The Burnt Church band has a school-house, church and council-house built on its reserve. The Eel Ground band has a church and lock-up, and the Red Bank band has a church on the reserve. The Big Cove band has a church, school-house and lock-up erected on its reserve and a council-house in course of erection. The Indian Island Indians have a church on their reserve and the Fort Folly Indians have also a church on their reserve.

Religion.—These Indians are all Roman Catholics. They are deeply attached to their religion, and their clergymen have much influence with them.

Temperance and Morality.—Many of these Indians are temperate ; others get drunk whenever they can get the liquor. In this respect there is, however, a steady improvement. They are as a general rule moral, peaceable and law-abiding.

I have, &c.,

WM. D. CARTER.

Indian Superintendent.

NEW BRUNSWICK,
NORTHERN AND SOUTHWESTERN DIVISIONS,
FREDERICTON, July 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the year ended June 30, 1904.

NORTHERN DIVISION.

EDMUNDSTON BAND.

Reserve.—This reserve is situated in the county of Madawaska. It consists of 720 acres, of which 518 are forest-lands. The remainder comprises intervale, pasturage and high lands that are well adapted for farming purposes.

Vital Statistics.—The population of the band is 49, an increase of 2, due to the births being in excess of deaths for the year.

Occupations.—The employments engaged in by the Indians for a livelihood are hunting, acting as guides, milling, stream-driving, and the manufacture of Indian wares. Owing to the time taken up at the several employments mentioned, farming, although the soil is fertile, free from stone and in every way well adapted for this business, is not engaged in to any extent by the band.

Health and Sanitation.—The health of these Indians for the past year was exceptioally good. The situation of their dwellings is favourable to good sanitation. All accumulations of winter refuse were removed in the month of May last.

Temperance and Morality.—Intoxicants are not indulged in by the members of this band with but one exception, and their morals are good.

Education.—A few of the children attend the free school of the village ; others cannot be induced to do so.

Religion.—All these Indian are Roman Catholics, their spiritual affairs are attended to by the Rev. L. C. Damour, of Edmundston.

TOBIQUE BAND.

Reserve.—This reserve is situated at the junction of the Tobique and St. John rivers in the county of Victoria. It consists of about 15,000 acres of forest and farming lands. The land north of Tobique river offers every facility for farming, but the Indians with few exceptions will not give the time required to this industry.

Vital Statistics.—The population of this band is 187, a decrease of 8 for the fiscal year, due to the removal of Indians from the reserve to parts of the State of Maine.

Occupations.—The employments engaged in by these Indians are hunting, acting as guides, stream-driving, working in the lumber woods, rafting lumber, running rafts from Tobique river to Fredericton, farming and the manufacture of Indian wares. Work as related is plentiful in this section of New Brunswick. The services of the Indians, they being an active class of men, are at all seasons in good demand and at good wages. A number of the band devote a part of their time to farming ; they raise sufficient crops to meet their wants, but, owing to the time taken up at the employments referred to, farming in most cases is not practically engaged in.

Health and Sanitation.—This band during the past year was subject to considerable sickness such as grippe, consumption, scrofula, and many other ailments. During the month of July last a case of small-pox was brought to the reserve by an Indian who was working where the disease was. As soon as the case was discovered, prompt measures were adopted to prevent the spread of the disease, and I am pleased to report that by strict enforcement of the quarantine regulations, the disease was confined to three dwellings containing five families, all of whom recovered. Sanitary regulations were attended to in the spring by the removal of all garbage and winter refuse from their dwellings. The houses of the Indians are of modern style, isolated from each other, are neatly painted and the interior of them and the surroundings are kept neat and clean. The water used for domestic purposes cannot be surpassed in the interest of health, as it is conveyed by two aqueducts from springs located on a hillside at the rear of the reserve.

Temperance and Morality.—The morals of the band are good. The majority of the Indians avoid the use of intoxicants, there are some of them, however, that will, from time to time, indulge to excess in the use of intoxicants.

Religion.—All the members of this band are Roman Catholics. Their church is situated on the reserve, and their spiritual affairs are attended to by a resident clergyman, the Rev. A. Morine.

Education.—The day school for the two first quarters of the fiscal year, was under the supervision of Miss P. M. Goodine, who retired from teaching on December 31, last. Since then Miss E. H. Costigan is their teacher. The pupils in regular attendance are making good progress in their respective studies. A number of children fail to attend school owing in a great measure to the removal of their parents to adjoining villages.

Characteristics and Progress.—The majority of the band are industrious and progressive ; there have been quite a number of improvements to dwellings and several new buildings have been put up during the year. The Indians are peaceable and command the respect of their white neighbours.

SOUTHWESTERN DIVISION.

WOODSTOCK BAND.

Reserve.—This reserve is situated on the St. John river, three miles below the town of Woodstock. It consists of 200 acres, of which 30 acres are used as farming and pasturage lands, the remainder being forest lands.

Vital Statistics.—The population of this reserve including Indians of Upper Woodstock, is 75, an increase of 3 for the year.

Occupations.—The industries engaged in are chiefly the manufacture of Indian wares. A few of the young men work in winter season in the lumber woods, and at stream-driving. Others find labouring work with farmers in the vicinity of the reserve. Farming is not engaged in to any extent, as most of the cleared land is used for pasturage ; as a rule a quick return for their labour is what is required by all of the band.

Health and Sanitation.—The health of these Indians for the past year has been fairly good. Their attention was called to the department's regulation in the month

of May last as to the removal of winter refuse from within and about their dwellings; this duty has been attended to. Happily there were no deaths among them during the fiscal year.

Temperance and Morality.—Their habits and morals are generally good, though occasionally a few may be found who indulge excessively in the use of liquor.

Education.—There is a free school in the district, about a mile from the reserve, at which the Indian children are welcome to attend; but, owing to their peculiar habits, they cannot be induced to take advantage of the facilities offered.

Religion.—All of this band are Roman Catholics. The Rev. Father McMurray, of the town of Woodstock, attends to their spiritual affairs.

KINGSCLEAR BAND.

Reserve.—This reserve is situated in the parish of Kingsclear, York county, and is eleven miles from the city of Fredericton. It comprises 460 acres, of which 360 are forest lands, that is covered with a second growth of soft wood. The remainder of the reserve consists of farming and pasturage lands.

Occupations.—The manufacture of Indian wares is the principal occupation of these Indians. Their wares are sold at Fredericton and to farmers in the vicinity of the reserve; if cash is not available, they take farm produce in return. Quite a number of families in the summer season visit the watering resorts along the River St. John, where they sell their fancy wares to tourists at double the price they can realize at home. A few of the band give considerable attention to farming. Others, especially young men, prefer labour such as working in the lumber woods, stream-driving, hunting, working in saw-mills, or any other employment that offers fair wages and a speedy return for the same.

Temperance and Morals.—Their habits and morals are good. They are industrious and law-abiding and live in peace and harmony with each other. They avoid the use of intoxicants, and are respected by their white neighbours.

Health and Sanitation.—The health of these Indians has been fairly good during the past year. Sanitary measures are carefully looked after. The reserve is located on a hillside with ample means for good drainage. Their buildings are comfortable, neat and clean, several of them have been further improved in the past year by the erection of additions, such as kitchens, and the reshingling of dwellings whenever required.

Education.—There is on this reserve a day school, at which the attendance of pupils was most satisfactory. This is due to the lively interest manifested by both teacher and parents in the education of their children. The results are that all the pupils are making rapid progress in their respective studies.

Religion.—All the members of this band are Roman Catholics. The church situated on the reserve, at which they were regular attendants, was totally destroyed by fire in May last. Their spiritual director, the Rev. Father LeBlanc, is using every effort to have a church erected in its place.

ST. MARY'S BAND.

Reserve.—This reserve comprises but two acres of land, and is situated in St. Mary's parish directly opposite the city of Fredericton.

Vital Statistics.—The population of this reserve is 126, an increase of 9, due to births in excess of deaths, and the removal of Indians from Oromocto reserve to this place.

Occupations.—The Indians of this reserve, with the exception of a few families who devote all their time to the making of Indian wares, which are disposed of in the city of Fredericton at poor prices, engage in various forms of labour, such as acting as guides, hunting, stream-driving, loading deals and scows at the Nashwaak, mill-

ing, and any other employment that offers in the vicinity of the reserve. The services of the young men and those of middle age are always in good demand at fair wages. None of this band engage in farming outside of a few who have garden patches that produce vegetables for immediate use.

Health and Sanitation.—Apart from sickness of an ordinary nature that most Indians are subject to, the health of the band has been fairly good. They were free from epidemics and diseases of a contagious nature during the year. Sanitary measures were strictly attended to in the early part of May last, by the removal and destruction of all offensive matter considered injurious to health.

Temperance and Morals.—Owing to this reserve being situated in close proximity to the city of Fredericton, at the approach of a public bridge leading from St. Mary's to Fredericton, and also situated directly in the centre of the villages of St. Mary's and Gibson, the Indians are subject to greater temptations than are those of any other band in this agency. It is, therefore, not surprising, considering the area of the reserve, and the number living thereon, that many of them indulge to excess in intoxicating liquors, the result being that there is much strife and quarrelling among families, coupled with other misconduct that is not only unedifying to the rising generation, but often necessitates the assistance of the Fredericton police force to quell disturbances.

Education.—There is a day school on this reserve under the supervision of Miss M. I. Rush, a teacher holding a second-class certificate. The attendance has been fairly good, and the children are making fair progress in their studies.

Religion.—All the members of the band are Roman Catholics. The church at which they attend is in the vicinity of the reserve. Their spiritual affairs are attended to by the Rev. J. J. Ryan, of St. Mary's.

OROMOCTO BAND.

Reserve.—This reserve is situated at the village of Oromocto, eleven miles below the city of Fredericton. It fronts on the St. John river and contains 125 acres, 30 of which are farming and pasturage lands, the remainder being forest lands.

Vital Statistics.—The population of the band is 72, being an increase of 10, due to the removal of a number of Indians from Upper Gagetown to the reserve.

Occupations.—Most of the band follow labouring work for a living. In the winter season, some work in the lumber woods, others cut cord-wood. Only a few engage in the manufacture of Indian wares, while a few devote some attention to farming, which consists only of the raising of sufficient potatoes and vegetables to answer their immediate wants.

Health and Sanitation.— This reserve is most favourably situated in the interest of health. The health of the band, apart from such diseases as grippe, scrofula, consumption and other ailments that Indians are subject to, has been fairly good. All of the band were free from contagious diseases. The sanitary condition of the reserve is good, and the water used for domestic purposes is supplied from several springs on the reserve.

Temperance and Morality.—The habits and morals of all these Indians are exceptionally good.

Education.—There is a new school in the district at which the children are welcome to attend. None, however, owing to their peculiar habits, have attended during the past year. During a recent visit to the reserve a number of the parents promised me that after the summer holidays, they would send their children to school. It is to be hoped that they will do so, as it is to be regretted that these children should grow up without an education, as many of them are bright and intelligent in other respects.

Religion.—All of these Indians are Roman Catholics. There is a church in the vicinity of the reserve at which they attend. Their spiritual affairs are attended to by the Rev. Father McDermott, of Queen's county.

General Remarks.—The remainder of the Indians of this agency are located in the counties of King's, Queen's, St. John and Charlotte. Their occupations are chiefly the same as above related.

In conclusion, I have to state that the great majority of the Indians of this agency are industrious, law-abiding and are using every effort to better their situation in life.

I have, &c.,

JAMES FARRELL,

Indian Agent.

NOVA SCOTIA,
MICMACS OF ANNAPOLIS COUNTY,
ANNAPOLIS, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to transmit my annual report and tabular statement for the year ended this day.

Reserve.—There are two reserves in Annapolis county, containing a combined area of 972 acres. The one situated on the Liverpool road has no land suitable for agriculture ; a part of the one at Chemagha or Fairy lake, on the boundary line between Annapolis and Queen's counties, is fairly good soil and parts are covered with a good growth of timber. There are some low meadows around the borders of the lake upon which wild grapes grow. There are no Indians living on either of the reserves nor do they derive any benefit from them.

Vital Statistics.—During the past year there has been a decrease in the Indian population of 8, making the present population 60 instead of 68 as last year. This decrease was partly due to emigration ; more Indians leaving the county than came in. There were 3 births and 4 deaths.

Health and Sanitation.—The health of the Indians, with two exceptions, has been good ; there were two deaths from consumption, but none from other contagious diseases. Their dwellings are all frame buildings, and are generally kept neat and clean, they willingly comply with sanitary regulations.

Occupations.—Their principal occupations are : basket-making, coopering, hunting, salmon-fishing and acting as guides to hunting and fishing parties. Some few live by farming.

Education.—Some of the children attend the public schools at Lequille and Middleton ; but make slow progress.

Religion.—All the Indians in this agency are Roman Catholics, they attend church at Annapolis and Bridgetown.

Characteristics and Progress.—The majority of the Indians are industrious. All of them are law-abiding and temperate, and while enjoying good health make a comfortable living. They are not a saving people as a rule and sickness generally finds them without any reserve to draw from ; then they expect assistance from the department. They live on friendly terms with their white neighbours and are noted for their honesty.

I have, &c.,

JOHN LACY,

Indian Agent.

NOVA SCOTIA,
MICMACS OF ANTIGONISH AND GUYSBORO' COUNTIES,
HEATHERTON, September 12, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the year ended June 30, 1904.

Vital Statistics.—During the past year there has been an increase of 6 in the band, making the population of this agency 215. There have been 13 births and 7 deaths. Consumption is the main cause of the deaths.

Religion.—They are all Roman Catholics and are very attentive to their religious duties.

Temperance.—As a rule the Indians are temperate, and not inclined to immorality.

I have, &c.,
J. R. McDONALD,
Indian Agent.

NOVA SCOTIA,
MICMACS OF CAPE BRETON—ESKASONI AGENCY,
CHRISTMAS ISLAND, October 4, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and tabular statement for the year ended June 30, 1904.

Reserve.—This reserve is situated on the north side of East bay, on the Bras d'Or lake. It contains 2,800 acres of land, but of this less than one-third is fit for cultivation, the remainder being rocky mountains. Hay and potatoes are the only crops grown. None of the Indians live exclusively by farming.

Vital Statistics.—The population of the band is 122, being an increase of 22 over last year; but this was owing to migration. There were 6 births and 6 deaths in the band. No sickness of a contagious or infectious character afflicted them during the year.

Education.—They have a good school, and they take advantage of it better now than for many years past.

Occupations.—Their occupations, besides farming, are fishing, hunting, coopering, basket-making, &c., and this constitutes three-fourths of their means of sustenance.

Religion.—In religion they are Roman Catholics, and their morals are exceptionally good.

I have, &c.,
A. CAMERON, P.P.,
Indian Agent.

PROVINCE OF NOVA SCOTIA,
MICMACS OF CAPE BRETON COUNTY—SYDNEY AGENCY,
SYDNEY, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the year ended June 30, 1904.

SYDNEY BAND.

Reserves.—The Indians of the Sydney band have two reserves. One is situated within the limits of the city of Sydney, and contains about two and three-quarter acres of land. On this reserve all the Indians of the Sydney band reside. The other reserve is situated at Caribou marsh, six miles from the city, and contains about six hundred acres. This reserve is mostly timber-land, and the Indians obtain their timber-supply from it. There are a few acres of intervale, which, if fenced and carefully looked after, would produce quite a quantity of hay, but the Indians do not take kindly to agricultural pursuits; so the hay is, year after year, appropriated by white people living in the neighbourhood of the reserve, and the Indians do not murmur.

Tribe.—All the Indians of this agency belong to the Micmac tribe.

Vital Statistics.—The population is 83, consisting of 14 men and 15 women, and 54 under twenty-one years of age. The population has been increased by 6 during the year, 4 having migrated from Prince Edward Island and 2 from St. Peter's, C.B. There were 2 births and 2 deaths during the year.

Health and Sanitation.—The health of the band has been fairly good. There are two cases of consumption (one of which came from Prince Edward Island in an advanced stage) and one case of cancer. These three patients are under regular treatment and receiving instructions as to the methods to be adopted for the prevention of the spread of infectious diseases. The sanitary conditions are improving. The grounds and houses are better kept than heretofore. The department has furnished means of sewerage and general water-supply for the reserve. The water was to be supplied by the city, but owing to some difficulties in the way, the connection has not been made yet. When a proper supply of water has been obtained, the sanitary conditions will be greatly improved.

Occupations.—The men have not done much work during the past year, not that they are more indolent than the usual run of Indians, but because times have been quite dull, and the kind of employment to which they are accustomed was not easily obtained. The women are very industrious, and, I believe, have done more during the past year to support the band than the men.

Buildings.—Improvement is steadily going on in this direction. Although no new buildings have been lately constructed, many changes have been made in those already built, with a view to making them more comfortable.

Education.—There never had been any educational advantages on this reserve until nearly a year ago, when a new school-house was built and a competent teacher engaged. The school has been in operation for about nine months, and so far is succeeding admirably. The teacher is earnest and painstaking, and not only is she mistress of the school, but the beneficial effects of her influence are becoming apparent in the whole band.

Religion.—They are all Roman Catholics on this reserve.

Temperance and Morality.—Drunkenness has been greatly on the decrease among the Indians lately. Whether this very desirable change is due to the efforts of the Rev. Father McAdam and his curate (who are always zealous for their spiritual and temporal welfare) and the moral influence of the school teacher, or to the fact that the Indians are not earning as much money as they used to, I cannot positively say, but I am inclined to the belief that the former is the principal cause. In proportion as drunkenness decreases, the standard of morality ascends.

NORTH SYDNEY BAND.

The Indians have no reserve at North Sydney, they are simply squatted in the woods on private property, about a mile and a half from the town of North Sydney.

Tribe.—They are all Micmacs.

Vital Statistics.—The population is 32, consisting of 7 men, 9 women and 16 young people under fifteen years of age. The number of births during the year was 1, and the number of deaths 2. A decrease of 3 took place in the population, due to migration.

Health and Sanitation.—These Indians have been fairly healthy during the year, only two among them are chronically ill. Their houses, though not of the best, are cleanly kept.

Occupations.—Their chief occupations are basket-making and coopering, and they earn some money by labouring around the town.

Buildings.—The buildings are small, but on the whole somewhat comfortable.

Religion.—They are all Roman Catholics.

Temperance and Morality.—They are all sober and regular in their habits, with the exception of two, and these are women.

I have, &c.,

D. K. McINTYRE,
Indian Agent.

NOVA SCOTIA,
MICMACS OF COLCHESTER COUNTY,
TRURO, July 25, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report with accompanying agricultural and industrial statistics for the fiscal year ended June 30, 1904.

Reserve.—The Millbrooke reserve is situated three miles south of Truro. It contains an area of thirty-five acres; also a wood-lot, one-half mile from the reserve, consisting of forty acres, purchased by the department last year.

Vital Statistics.—There have been 3 deaths and 4 births. The population is 85.

Health.—The health of the Indians has been good.

Occupations.—The principal occupations of the Indians are coopering, making rustic work, basket-making, berry-picking and bead-work. A number of men are busy making hockey-sticks. In spring-time they raft logs, chop cord-wood, &c.

Education.—The Indians of the reserve have enjoyed the privilege of a school for over five years, and are making fair progress.

Characteristics and Progress.—A number of the Indians have some land, and grow crops such as potatoes and oats. They do very well, but on account of being able to obtain good wages at other occupations, agriculture is somewhat neglected.

Religion.—The Indians on this reserve belong to the Roman Catholic Church.

I have, &c.,

THOS. B. SMITH,

Indian Agent.

PROVINCE OF NOVA SCOTIA,
MICMACS OF CUMBERLAND COUNTY,
PARRSBORO, September 12, 1904.

The Honourable .
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report, together with the accompanying agricultural and industrial statistics, for the fiscal year ended June 30, 1904.

Location.—This agency comprises the whole of Cumberland county. The headquarters of the Indians, however, is at the Franklin Manor reserve at Halfway river. This reserve consists of 1,000 acres of good land and is situated far from any town, being about fourteen miles from Parrsboro, and about thirty-five miles from Amherst. Some of the Indians preferring to live nearer a town, or railroad, have settled near Southampton ; a still larger number reside at Springhill Junction, and a few may be found in the vicinity of Amherst.

Vital Statistics.—During the year there has been an increase of 5 in the Indian population in this county, making the number at present 96. There were 8 births and 6 deaths and 3 left the county.

Health and Sanitation.—In spite of the fact that the sanitary precautions recommended by the department have been, as far as possible, carefully carried out, nearly all the deaths that have occurred were caused by some form of tuberculosis.

Resources and Occupations.—The Indians living on the reserve, or in that vicinity depend, partially, on the produce of their farms for a living. Some of them, however, work in the lumber woods in the winter and the mills in summer. Some make baskets and tubs and mast-hoops, and all hunt and fish more or less. Several of the young Indans act as guides for hunting parties, and in this way make quite a lot of money. Those living at Springhill Junction make large numbers of pick-handles for use in the Springhill coal mines. The women and children pick berries, and many of them beg more or less clothes and food from the whites.

Education.—Nearly or quite all the young Indians in the vicinity of the reserve can read and write. They are taught in the Halfway river school, to which the department kindly makes a quarterly grant to pay for this privilege.

Religion.—All the Indians in this vicinity are Roman Catholics. They have a chapel of their own, in which they worship.

Temperance and Morality.—I am glad to be able to report that during the past year there has been no drunkenness among these Indians ; morally, too, they are much improved.

I have, &c.,

F. A. RAND,

Indian Agent.

NOVA SCOTIA,
MICMACS OF DIGBY COUNTY,
BEAR RIVER, July 13, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I beg to submit my annual report and tabular statement for the year ended June 30, 1904.

Reserve.—The reserve is situated one and a half miles from the village of Bear River, and contains 1,600 acres, of which 48 are cultivated, 200 are natural pasture, the remainder is underwood, chiefly second growth.

Vital Statistics.—The population is 125; 35 live in Weymouth. There have been 5 births and 5 deaths during the year.

Health and Sanitation.—There has been no contagious disease amongst these Indians during the year. Their general health has been very good with a few exceptions. Sanitary regulations have been observed. The houses and premises are kept clean.

Buildings.—The buildings are frame, most of them are in good repair, and comfortable.

Occupations.—They derive their support by hunting, acting as guides for sportsmen, river-driving, farming, making canoes, baskets and fancy-work of different kinds, and some as day labourers.

Education.—They have one school-house on the reserve. The attendance is very good. The pupils learn quickly and their parents are taking quite an interest in their education.

Religion.—The Indians of this band are all Roman Catholics. They have one church on the reserve, where they attend worship.

Characteristics.—With few exceptions, they are industrious and law-abiding.

Temperance.—With few exceptions they are temperate. Measures have been taken to prevent liquor being sold on the reserve.

I have, &c.,

JAS. H. PURDY,
Indian Agent.

NOVA SCOTIA,
MICMACS OF HALIFAX COUNTY,
SHEET HARBOUR, August 22, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I beg to submit my annual report for the year ended June 30, 1904.

Location.—This agency embraces the Indians who reside within the confines of Halifax county. The principal points at which Indians are settled are : Sheet Harbour, Elmsdale, Wellington, Windsor Junction, Bedford, Dartmouth and Cow Bay.

Vital Statistics.—The population of this band is 174, consisting of 35 men, 35 women and 104 children.

Health.—There have been no epidemics among the Indians of this agency during the past year, though they suffer considerably from ordinary ailments.

Education.—No distinctively Indian school is in existence within the county; where possible the Indian children generally avail themselves of regular schools provided for whites, though at the same time some are too careless to appreciate the benefit of a school.

Occupations.—Basket-making, lumbering and fishing constitute the regular sources of income for the Indians of this agency. Of late years the manufacture of hockey-sticks has contributed substantially to their income.

Religion and Morality.—The Indians are all of the Roman Catholic faith. They are well-behaved as a class. Instances of over-indulgence in liquor are sometimes remarked, but considering the fact that very many Indians find the market for their goods in the city of Halifax and are, therefore, more exposed in such a place to the dangers of intoxication than in their own homes in the country, we wonder that they do as well as they do.

I have, &c.,
CHAS. E. McMANUS,
Indian Agent.

NOVA SCOTIA,
MICMACS OF HANTS COUNTY,
SHUBENACADIE, October 8, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Reserve.—The reserve is situated in the north part of the county of Hants. There is only part of the band living on the reserve, the remainder are scattered through the county.

Vital Statistics.—The population is now 94, a decrease of 1 during the year.

Health and Sanitation.—The health of the band has been fairly good and I am pleased to be able to state that there have been no deaths reported on account of consumption; this is exceptional, as it is the one great scourge of the band which hitherto has carried off the greater part of those dying before middle age.

Occupations.—The Indians are engaged principally in making goods for the fancy and sport market, but several families are engaged in farming and are apparently doing better than any who follow any other calling.

Education.—Education is surely but slowly having its effect as can be seen by the children who go to school. They are apt to learn, and remember well what they have acquired at school even although absent for a long time.

Religion.—All are Roman Catholics and attend divine service, which they enjoy in the church on the reserve and which is under the charge of Rev. Father Young.

General Remarks.—With one exception there has been no cause to regret their conduct during the year, and intemperance is held in check by the better-meaning ones assisted by the fear of exposure by law.

I have, &c.,
ALONZO WALLACE,
Indian Agent.

NOVA SCOTIA,
MICMACS OF INVERNESS COUNTY,
GLENDALE, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and tabular statement for the year ended June 30, 1904.

Reserve.—In this agency there are two reserves: Whycocomagh, containing 1,555 acres, and Malagawatch, containing 1,200 acres.

Vital Statistics.—The population at Whycocomagh remains at 135. During the year there were 8 births, 2 joined the band, 6 died and 4 went away. At Malagawatch the population numbers 43. There were 2 births during the year.

Health and Sanitation.—Measles was epidemic at Whycocomagh during the early spring, as a consequence of which school was closed for a time. Nearly all the mortality was among small children. Of the two adults one was the victim of consumption. Small-pox came near to the Indians of this agency both at Whycocomagh and Malagawatch ; but, fortunately, no cases were reported among them. The Indians at Whycocomagh were nearly all vaccinated.

Occupations.—One or two families earn their living by farming. Previously to last year the Whycocomagh reserve was used by the surrounding white people to pasture their cattle, but the Indians put up warnings of 'No Trespass' in the shape of fences, and now their own cattle profit by such energetic action. Basket-making, moccasin-making, woodwork, fishing, hiring out to service and begging support these people.

Buildings.—Mostly all the homes are frame houses.

Education.—Progress in this particular is slow owing to irregularity of attendance at school.

Religion.—All the Indians of this agency are Roman Catholics.

Temperance and Morality.—With a noted exception or two, these Indians are sober and well-behaved.

I have, &c.,
DONALD MacPHERSON, P.P.,
Indian Agent.

PROVINCE OF NOVA SCOTIA,
MICMACS OF KING'S COUNTY,
STEAM MILLS, August 13, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report with statistical statement for the year ended June 30, 1904.

Reserve.—The Indians of this agency are scattered throughout the county, there being but two families on the reserve at Cambridge. It contains about nine and three-

quarters acres of sandy plain with some scrub pine, lying on the Cornwallis river not far from the line of D. A. R. Railway.

Vital Statistics.—The population is 80. There were 5 births and 8 joined the band.

Health.—The health of the Indians is good. There have been no infectious diseases.

Religion.—These Indians are all Roman Catholics.

Occupations.—They do but little farming, but are engaged in basket-making, coopering, hunting and acting as guides.

Temperance.—There is but very little drinking amongst them : I have seen nothing in excess; they are naturally fond of strong drink, but see the evils of it.

Morality.—Their morals are good and they are fairly industrious.

Education.—There are no Indian schools, but the children attend school with the white children.

I have, &c.,

C. E. BECKWITH,

Indian Agent.

NOVA SCOTIA,

MICMACS OF PICTOU COUNTY,

NEW GLASGOW, July 23, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the year ended June 30, 1904.

Reserves.—There are two reserves in this agency, the Indian Island reserve and the reserve at Fisher's Grant. A piece of land adjoining the Fisher's Grant reserve was bought by the department during the past year, enlarging the reserve by 36 acres. The Fisher's Grant reserve has now an area of 200 acres. This increased land property should prove a boon to the Indians here.

Vital Statistics.—The combined population of the two reserves is 155. There were 5 deaths and 5 births during the year. A family of 5 moved to the Fisher's Grant reserve from Cape Breton.

Health.—The health of the Indians has been good. A few deaths from consumption occurred during the year.

Occupations.—Farming, fishing, coopering and the making of baskets and pick-handles are the avocations in which the Indians are employed. Many of the Indians get work at Pictou Landing during the summer months, loading and unloading steamers.

Buildings.—The houses of the Indians are fairly large and comfortable. The Indians are ever anxious to improve their houses and their village at Fisher's Grant presents a pretty appearance from the highway.

Education.—The school at Fisher's Grant is keeping up the good record it has made. The attendance during the winter months was good, and the children under the tuition of Miss Carrie A. McDonald, have made much progress. The work done in this school has been lately most favourably commented upon by the public press.

Religion.—All the Indians of this agency are Roman Catholics and much attached to their faith.

Temperance and Morality.—With a few exceptions, the Indians of Pictou county are sober and industrious. In their simple unworldly minds, religion is deeply rooted and it is edifying to observe the honesty and purity of their secluded lives.

I have, &c.,

J. D. McLEOD,

Indian Agent.

NOVA SCOTIA,
MICMACS OF QUEEN'S AND SHELBURNE COUNTIES,
CALEDONIA, September 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the fiscal year ended June 30, 1904.

Reserves.—There are three reserves in this agency of 1,000 acres each, two in Lunenburg county, and one in Queen's county. There are Indians living on all three of these reserves who are making their living chiefly by farming. There are others living in Lunenburg and Bridgewater, in Lunenburg county, and at Milton Mill village, and Caledonia, in Queen's county. Those not residing on the reserves live by fishing, hunting, basket making and working in the lumber woods.

Vital Statistics.—The population of this agency is 177, a decrease of 8.

Health.—The health of the Indians of this agency has been good, most of the deaths being from old age.

Education.—There is only one school in the agency, at New Germany, under the charge of Miss Shea. The Indians of this reserve enjoy the advantage of a school and are making good progress.

Religion.—All the Indians of this agency are Roman Catholics.

Characteristics.—The Indians in this agency are law-abiding and live peaceably and quietly.

I have, &c.,

CHARLES HARLOW,

Indian Agent.

NOVA SCOTIA,
MICMACS OF RICHMOND COUNTY,
BROOK VILLAGE, July 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the fiscal year ended June 30, 1904.

Reserve.—Chapel Island reserve is situated on the shore of the Bras d'Or lake, in Richmond county, and contains an area of 1,200 acres of good soil.

Vital Statistics.—The population of the reserve is 116, consisting of 30 men, 29 women and 57 young people under twenty-one years of age. There is an increase since last year of 4, the births having been 5, the new comers 7, while 8 have died, of whom one was old Francis Scotchman, whose age at the time of his death was one hundred and six.

Health and Sanitation.—The health of the Indians during the past year was comparatively good, only two having died of consumption, one of old age, one of scarlet fever, and five children from infantile debility.

Occupations.—The majority of the Indians engage in farming, while a good portion go fishing and hunting during the summer and in winter are occupied in making baskets, tubs, axe-handles and cutting pit-props and sleepers.

Buildings.—The buildings are, on the whole, good, strong and serviceable frame dwellings. The barns are in good condition, and two new ones and new houses are in course of erection.

Stock.—The stock consists principally of horses, cattle and poultry, which are all in a fair condition.

Farm Implements.—The farm implements are in fair condition, and consist of some ploughs, harrows, &c.

Education.—There is one school, which is situated about the centre of the reserve. The interest taken by the Indians in the educational progress of their children is not all that could be desired ; yet the progress is very fair under the painstaking teacher, Joseph L. McDonald.

Religion.—All the Indians of the reserve are Roman Catholics. They have a beautiful church on Chapel island, where they gather together from all parts of Cape Breton every year during the month of July to enact laws, to make a spiritual retreat and celebrate most solemnly the festival of their patron staint, St. Ann.

Characteristics and Progress.—The majority of the band are becoming very industrious. The policy adopted by the department in withholding aid from those who are strong and healthy and quite able to earn their own livelihood is beginning to have good results in so far as to make them more industrious and more self-reliant, as has been decidedly the case during the past year.

Temperance and Morality.—These Indians are most temperate and moral in their habits and law-abiding, living together peaceably and quietly.

I have, &c.,

JOHN FRASER,

Indian Agent.

NOVA SCOTIA,

MICMACS OF SHELBURNE COUNTY.

SHELBURNE, July 26, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Vital Statistics.—The population on June 30, last, consisted of 32 persons, an increase of only 1 over the former year ; 2 were added by marriage, and there were 2 births and 3 deaths.

Religion.—The Indians in this agency are Roman Catholics, with the exception of one, who is a Baptist.

Health and Sanitation.—A young wife and her child of six months died of consumption at Jordan Falls. The sanitary conditions of the premises they occupied were bad, a family of twelve in very small quarters. During the month of July this family sold their premises to a white man, and moved to Tusket, in the county of Yarmouth. The health of two of the eastern families is not good.

Occupations.—The chief source of income is from a monthly wage earned in the lumbering business. But little time is now expended, as of old, in fishing, hunting, furring and basket-making.

Temperance.—The Indians in this agency are all temperate except one, and that one will probably continue to offend in this line so long as the greater offenders, who sell to him, cannot be found.

Characteristics.—The Indians are industrious and law-abiding, and although their progress is not very marked, yet they are gradually bettering their condition.

I have, &c.,

ROB. G. IRWIN,
Indian Agent.

NOVA SCOTIA,
MICMACS OF VICTORIA COUNTY,
BADDECK, August 25, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report and statistical statement for the fiscal year ended June 30, 1904.

Reserve.—There is only one reserve in this county, situated at Middle River. It contains 650 acres, nearly 400 acres of which is under wood. The wood consists of second growth of light timber. The soil is very fertile, being specially adapted for raising hay.

Tribe.—These Indians are Micmacs.

Vital Statistics.—The population is 95, a decrease of 3 since last year, there having been 1 birth and 4 deaths during the year.

Health and Sanitation.—The health of the Indians for the past year has been good. Owing to the prevalence of small-pox in the vicinity of the reserve last spring, the Indians were vaccinated, their dwelling-houses cleaned, and all refuse and garbage burned. Owing to the precautions taken, none of the Indians took the disease.

Occupations.—The principal pursuits are farming, coopering, basket-making, hunting, fishing and hiring out as labourers. A less number of them hired out as labourers than in former years.

Education.—There is a new school-house on the reserve. The attendance for the past year shows a slight increase over the previous year.

Religion.—They are all Roman Catholics. There is no church on the reserve.

Characteristics and Progress.—The Indians here are an industrious and law-abiding class of people. They seem to be materially improving in their manner of living. They live in neat, comfortable, dwelling-houses. A number of them are becoming interested in farming.

Temperance and Morality.—These Indians are temperate and are moral in their habits.

I have, &c.,

A. J. MACDONALD,
Indian Agent.

NOVA SCOTIA,
MICMACS OF YARMOUTH COUNTY,
YARMOUTH, August 8, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Reserve.—The reserve is situated on the north side of Starrs' road about two miles from the town. It contains twenty-one and a quarter acres. There are four families living on the reserve; the rest are scattered all over the county, some at Salmon river, Tusket, Tusket Forks, Hectanoogo and Pubnico Head.

Vital Statistics.—The population of this agency is 80, decrease of 1. There were 2 births and 3 deaths during the year.

Health and Sanitation.—The health of the Indians is poor; they observe the sanitary regulations with regard to their dwellings fairly well.

Occupations.—The Indians are engaged in saw-mills, log-driving, making baskets, mast-hoops and axe-handles. Some go as guides for hunting and fishing parties, and some do general work.

Education.—The children attend school fairly well when they have a chance.

Religion.—These Indians are all Roman Catholics.

Characteristics and Progress.—Within the last year or two the Indians show an inclination to settle down and make homes for themselves.

Temperance and Morality.—With few exceptions they are temperate and law-abiding.

I have, &c.,
W. H. WHALEN,
Indian Agent.

PRINCE EDWARD ISLAND,
MICMACS OF PRINCE EDWARD ISLAND,
HIGGINS ROAD, August 24, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to transmit my report and tabular statement for the year ended June 30, 1904.

Reserves.—There are two reserves in this superintendency, viz., Lennox Island reserve and the Morell reserve. The former is an island in Richmond bay; it contains 1,320 acres. The Morell reserve is situated on lot 39 in King's county; it contains 204 acres of good land.

Vital Statistics.—The population comprising the two reserves and other localities in Prince Edward Island, consists of 80 men, 77 women and 135 children, making a total of 292. There were during the year 17 births and 13 deaths.

Health and Sanitation.—The health of these Indians has been fairly good. There was, however, an epidemic of whooping-cough among the children in the winter.

Occupations.—The principal occupations are farming, fishing and the manufacture of Indian wares.

Buildings, Stock and Implements.—The Indians who reside on the reserves live in comfortable houses ; several of them keep horses, cattle, pigs and poultry. They are fairly provided with farm implements, such as ploughs, spring-tooth harrows, &c.

Education.—There is but one school, situated on Lennox Island reserve. The children who attend regularly are making fair progress.

Religion.—The Indians of this superintendency are all Roman Catholics, and are attentive to their religious duties.

Temperance.—On this subject I am pleased to be able to report that the Indians residing on the Lennox Island reserve are sober. They organized some years ago a temperance society. The members meet monthly under the presidency of Mr. Anthony Mitchell ; this society has done a great deal of good on this reserve.

I have, &c.,

JOHN O. ARSENAULT,
Indian Superintendent.

MANITOBA SUPERINTENDENCY,
CLANDEBOYE AGENCY,
WEST SELKIRK, August 17, 1904.

The Honourable
The Superintendent General of Indian Affairs.
Ottawa.

SIR,—I have the honour to submit for your information my report of the Clandeboye agency for the year ended June 30, 1904.

The office and headquarters of the agency are situated in the thriving town of West Selkirk and are immediately adjacent to the most important section of my work.

Reserves.—The agency has in it three reserves, viz.: Saint Peter's, Brokenhead River and Fort Alexander. The first-mentioned has an area of about 80 square miles, Brokenhead 22 square miles, and Fort Alexander 32 square miles.

The distance from south to north across the agency is about 100 miles, and the reserves can be reached in summer by canoe or steamer, and in winter by dog-train or by horses.

All three of these places named are situated in areas of excellent land suitable for grain-growing and for stock-raising purposes. The ground is covered with oak, poplar or spruce trees, affording fine shelter in the winter months; and rivers flowing through each reserve afford opportunities for boating and fishing. All conditions conspire to make the welfare and happiness of the people complete.

Vital Statistics.—At St. Peter's are found 262 men, 280 women, 299 boys, and 268 girls, making a total of 1,109.

At Brokenhead River are 47 men, 50 women, 29 boys and 35 girls, making a total of 161.

At Fort Alexander there are 119 men, 132 women, 130 boys, and 103 girls, making an aggregate of 484.

The grand total in the whole agency is 1,754, a decrease from various sources of 23.

Health and Sanitation.—Excellent health has prevailed throughout the agency this year. Conditions have been favourable to the general physical condition of the

people ; 60 deaths have occurred, outbalanced by 82 births. Several have obtained commutation and there was an unusual number of absentees this year.

Dr. J. R. Steep has made eighteen visits to St. Peter's and two each to Fort Alexander and Brokenhead, giving relief to special cases and supplying medicines for the use of the dispensers in cases of emergency.

Most of the Indians of this agency are well-to-do. They live in well-built, well-ventilated houses and have about them every evidence of thrift and comfort. We have endeavoured to teach them to observe the regulations of the department referring to the preservation of health, and for the most part have had their co-operation.

Occupations.—St. Peter's reserve has some of the best land in the province of Manitoba. It has the advantage of being very near to an excellent market. It also has the best shelter from north and west winds offered to any locality. It is safe to say that, properly cultivated, it might produce one hundred thousand bushels of the best wheat per year. As a matter of fact, however, the whole output will scarcely measure up to one thousand bushels. It should be said that considerable oats and barley are sown this year.

The reasons why so little agricultural work is done are not hard to find. The same instinct which leads Indians to disregard right angles in their haste to find the shortest road between two points, actuates them in this line of activity. A net put in at nightfall gives at dawn a full day's eating. A crop put in during early April must be watched and tended for three months and a half before the time of harvest.

Fishing is the time-honoured pursuit of the fathers, an easy and inexpensive method of supplying the wants of the family. Farming is regarded as hard, menial and foreign work, good enough for white men who are familiar with the short cuts to plenty and ease.

Besides this, Selkirk is the headquarters of an extensive navigation. As soon as the waters flow free, all the young men of the tribe are in demand as boatmen. Steamers, schooners, fishing smacks and tugs must all be manned and for the most part from St. Peter's. This draws so heavily on the vim and muscle of the reserve that only the infirm are left to take care of the women and children and carry on farm work. This continues until October. At this time comes the winter draft of men to the shanties and lumber mills, where they are employed from November until April. The short spaces of time spent at home by such people are regarded as holidays, and I am sorry to say are spent in carousals of the most hurtful character.

The Brokenhead River band is not thrifty along agricultural lines. Some gardening has been done, but fishing and hunting are the main sources of income.

The Fort Alexander band is more progressive, and a number of improvements are in evidence, but the main industry is fishing. Very little farming has been done and crops are weed-grown.

Throughout the agency much money is earned from one source and another, but as soon as there is a small supply of money on hand, it is wasted in selfish pleasure, and the dark days coming are for the time forgotten. Most of the people seem to have no ambition to do more than live from hand to mouth. I am glad to say that there are honourable exceptions who deserve great praise. There is work for all and good wages for all, and the best of success is possible to all.

Buildings and Stock.—I have carefully noted the class of animals owned by our people and also the character of the places where they are housed. I find that no attention is paid to the improvement of the stock, and there is a great deal of carelessness in providing what I think to be necessary to preserve their animals in the best condition. There was great difficulty in obtaining sufficient hay last year, and the spring was unusually long and the cattle suffered much before the grass was green. Only a few of the more enterprising have proper buildings for the accommodation of stock, and many deaths have been reported, plainly traceable to these and similar causes. Sheep are not extensively raised. Almost every one has a horse, and not a few good buggies are noticed on St. Peter's reserve.

Education.—There are eight schools in operation in the agency. The attendance at St. Peter's is only fair. At Brokenhead there are discouraging influences at work which have reduced attendance. At Fort Alexander there is a very fair attendance. Educational work is under the direction of the Anglican and Roman Catholic Churches, the former having five schools and the latter three. A new boarding school is in course of erection under the auspices of the Roman Catholics, which promises to meet the educational wants of the children of this locality associated with this faith.

Many of the children of this agency are at present found in the St. Paul's industrial school at Middlechurch, or at those of St. Boniface and Elkhorn. A goodly number of ex-pupils are living at St. Peter's and elsewhere, who reflect credit on their training. Others have unfortunately made shipwreck of themselves and their advantages.

The question of funding the money of the children attending the industrial schools continues to awaken opposition. This is intensified by the fact that the parents who desire that their children return for a brief holiday have been asked to pay the return fare.

Religion.—Anglicans, Baptists, Roman Catholics and minor sects, such as Seventh Day Adventists and Plymouth Brethren, have undertaken religious work in this agency. The three first mentioned have beautiful churches with resident clergymen and organized work. The smaller bodies hold occasional services conducted by lay agents.

The Indian, as I have found him, is a religious person, well disposed to that which is good, but the number of religious denominations represented with the consequent introduction of new doctrines, or the over-emphasis of minor doctrines, has an unfavourable effect. I cannot but perceive a gradual departure from the faith and practice of the fathers. Evil practices are all too popular and the restraining influences seem to become weaker.

Temperance.—The one vice prevalent here is the curse of strong drink; intemperance is rampant. This is not only true of the men, but also of the women to some extent. In this wretched habit I find that young men, from whom we might naturally expect the best things, are the very ones who manifest the most lawlessness. They are often fined for being drunk and disorderly on the streets of Selkirk, and the fines imposed only seem to make them careless, even desperate, in the mad race for liquor.

Morality.—Although we should not judge the Indian by the standards used in judging white people, yet the Indian as he is known here might be a great deal better than he is. He is not as honest as he should be. There is much immorality. There are many good people, but it is evident that the rising generation have very low ideals of life. I am not disposed to prophesy disaster, but I see the need of radical reforms both in church and social life. Progress in industrial and commercial life is marked by mental and moral retrogression. The outlook is scarcely hopeful.

I have, &c.,

JOHN SEMMENS,
Indian Agent.

MANITOBA SUPERINTENDENCY,
RAINY RIVER DISTRICT—FORT FRANCES AGENCY,
FORT FRANCES, ONT., July 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for this agency for the year ended June 30, 1904.

Agency.—The agency buildings are situated at the mouth of Rainy lake on what is known as Pither's point, about three miles east of Fort Frances, and the agency comprises the following bands, viz.:—Hungry Hall, Nos. 1 and 2; Long Sault, Nos. 1 and 2; Manitou Rapids, Nos. 1 and 2; Little Forks, Couchiching, Stangecoming, Niacatchewenin, Nickickousemenecanning, Seine River, Lac la Croix and Sturgeon Lake, being fourteen in all.

HUNGRY HALL BANDS, NOS. 1 AND 2.

Reserves.—These reserves, Nos. 14 and 15, are situated at the mouth of Rainy river and contain 6,280 acres. The timber on reserve No. 15 is of poor quality, as fires have frequently run through it during past years and destroyed most of the merchantable timber ; but on reserve 14 there are large quantities of tamarack, spruce, cedar and poplar. The land is a rich clay loam.

Tribe.—All the Indians in these bands belong to the Ojibbewa tribe.

Vital Statistics.—The population of the two bands is 48, consisting of 13 men, 18 women, 9 boys and 8 girls. There were 3 births and 1 death during the year.

Health and Sanitation.—The general health of all the bands in this agency has been good. All the Indians have been vaccinated.

Occupations.—The majority of these Indians work at the saw-mills and timber camps, and can always get employment at good wages.

Religion.—The majority of these Indians are pagans; a few belong to the Church of England.

Education.—There is no school in operation on these reserves.

Temperance.—These Indians are addicted to the use of intoxicants, which they usually get on the American side.

LONG SAULT RAPIDS BANDS, NOS. 1 AND 2.

Reserves.—These reserves, Nos. 12 and 13, are situated on the north bank of Rainy river, opposite the rapids of that name. Their combined area is 11,413 acres. The land is a rich black loam with a clay bottom and is well adapted for farming and stock-raising.

Vital Statistics.—There are 22 men, 25 women, 12 boys and 17 girls in these bands, making a total of 76 in all. There were 3 births and 4 deaths.

Occupations.—They work at saw-mills, lumber camps and on steamboats, clearing land for settlers, and last winter they took out a large quantity of dry cord-wood and some ties and dry saw-logs.

Education.—There is a very good day school here under the auspices of the Church of England. The attendance has been fairly regular. The school-house has been recently re-shingled. Miss Jeanet McLeod is the teacher and is giving very good satisfaction.

Religion.—The Church of England has a very good church here with a resident missionary, Rev. J. Johnston, who looks after the religious welfare of all the bands on Rainy river.

Temperance.—I regret to state that these Indians are very intemperate and, owing to their close proximity to the American boundary where a number of 'blind pigs' are kept, can get all the liquor they want.

MANITOU RAPIDS BANDS, NOS. 1 AND 2.

Reserve.—These bands occupy reserve No. 11, which is situated on the north bank of Rainy river, opposite the rapids of that name. The area is 5,736 acres. The land is a rich clay loam. The merchantable timber sold by public auction to the Rat Portage Lumber Company has now been all taken off. Dues amounting to $1,391.43 have

been collected and placed to the credit of these bands for the timber cut last winter. This makes a total of $2,343.25 for dues collected during the past two years for this timber.

Vital Statistics.—The population consists of 25 men, 30 women, 30 boys and 26 girls, making a total of 111. During the year there were 7 births and 3 deaths.

Occupations.—These Indians are good axemen and good workers and can always get employment in lumber and tie camps at good wages. They also make considerable money working for settlers, fishing and hunting, and selling dry cord-wood.

Education.—There is a day school on this reserve under the auspices of the Church of England, which is taught by Mr. R. H. Bagshaw.

Religion.—They are all pagans in these two bands.

Temperance.—These Indians are very much addicted to the use of intoxicants.

LITTLE FORKS BAND.

Reserve.—The reserve of this band is situated on the north bank of the Rainy river, twelve miles east of Fort Frances and opposite the mouth of the Little Forks river and is designated as reserve No. 10. It contains an area of 1,920 acres. The land is a rich clay loam.

Vital Statistics.—The population consists of 11 men, 16 women, 10 boys and 11 girls, making a total of 48. There was 1 birth and 1 death during the year.

Occupations.—These Indians were employed last winter in taking out saw-logs, ties and cord-wood on the American side, and in running timber down the river in the spring, and made very good wages. The men, can always get work at good wages in working for settlers, on steamboats and in lumber camps. The fishing and hunting is very good.

Temperance.—These Indians are intemperate, and as there is a 'blind pig' kept on the American side of the river, opposite the reserve, and also one a few miles down the river, they can get all the liquor they can pay for, consequently a great deal of their money is spent in liquor.

WILD LAND RESERVE, NO. 15 M.

This reserve, consisting of 20,671 acres, is owned in common by all the above mentioned Rainy river bands. It adjoins the Hungry Hall reserves near the mouth of Rainy river. This reserve is well timbered with pine, spruce, tamarack, cedar and poplar. The land is a rich clay loam.

COUCHICHING BAND.

Reserves.—The reserves of this band are situated on Rainy lake and Stangecoming bay, three miles north of Fort Frances, and are designated as 16A, 16D and 18B. They contain an area of 15,947 acres. There is considerable good land, but the greater portion is rocky and broken. There is very little merchantable timber on these reserves, owing to frequent fires in the past having destroyed the best of the timber. During the winter the department leased 155 acres of this reserve for a mill-site for a term of twenty years at $300 per year. A saw-mill has been built and is now running, owned by Messrs. Preston & Bell.

Vital Statistics.—This band has a population of 142, consisting of 37 men, 43 women, 31 boys and 31 girls. There were 4 births and 2 deaths during the year.

Occupations.—The resources of this band are many, consisting of working in lumber camps, saw-mills, cutting and hauling cord-wood, river-driving, working on steamboats and for settlers, fishing and hunting, at good wages. A number of the Indian women get considerable work at washing and scrubbing at Fort Frances.

Buildings.—The houses are well built and very comfortably furnished, and all are kept clean and neat.

Education.—There is a good day school here. It is under the auspices of the Roman Catholic Church. The attendance has been good and progress fair.

Religion.—The majority of this band are Roman Catholics. They have a very good, large church, which they built themselves. The Rev. Father Bresseau has charge of this mission.

Progress.—These Indians are principally French half-breeds and are an industrious and law-abiding people.

Temperance and Morality.—On the whole, this band is a fairly temperate and moral community.

STANGECOMING BAND.

Reserve.—This reserve, No. 18C, is situated on Rainy lake about eight miles north of Fort Frances and contains 3,861 acres, the greater portion being barren rock and the timber of poor quality.

Vital Statistics.—The population consists of 6 men, 8 women, 14 boys and 20 girls, making a total of 48 in the band. During the year there were 2 births and no deaths.

Occupations.—These Indians live principally by fishing, hunting and working in lumber camps.

Education.—There is a day school here under the control of the Roman Catholic Church, but it has been closed since last September.

Religion.—Excepting about ten persons, all the Indians in this and the following bands are pagans.

NIACATCHEWENIN BAND.

Reserve.—The reserves attached to this band are 17A and 17B and are situated about twenty-six miles northwest of Fort Frances, on the Northwest bay in Rainy lake. The area of these reserves is 6,201 acres. The greater portion is rocky and broken. There is considerable good timber, especially on 17B.

Vital Statistics.—There are 11 men, 13 women, 14 boys and 21 girls in this band, making a total of 59. There were 2 births and no deaths during the year.

Occupations.—The able-bodied men in this band get employment in lumber camps, but they principally make their living by fishing and hunting.

Education.—There is no school on this reserve.

NICKICKOUSEMENECANNING BAND.

Reserve.—This band owns reserve 26A on Red Gut bay, reserve 26B on Porter's inlet and reserve 26C on Sand Island river and Rainy lake. The combined area is 10,227 acres, a considerable portion of which is heavily timbered, but the greater portion of the land is rocky and broken.

Vital Statistics.—The population of this band consists of 5 men, 13 women, 17 boys and 10 girls, making a total of 45. There were 2 deaths and 1 birth.

Occupations.—This band lives principally by fishing and hunting.

SEINE RIVER BAND.

Reserves.—This band has two reserves: No. 23A, extending from Wild Potato lake to Sturgeon Falls on the Seine river ; No. 23B is at the mouth of the Seine river. They contain a combined area of 11,063 acres.

Vital Statistics.—There are 28 men, 33 women, 30 boys and 34 girls, making a total of 125. There were 2 births and 2 deaths.

Occupations.—Only a few Indians reside on these reserves. They live principally by fishing and hunting.

Education.—A new school-house has been built at Wild Potato lake, but has not yet been opened.

LAC LA CROIX BAND.

Reserve.—The reserve, No. 25D, belonging to this band, is situated on Lac la Croix, near the boundary and contains 15,353 acres.

Vital Statistics.—There are 20 men, 31 women, 29 boys and 33 girls in this band, making a total of 113 persons. During the year there were 4 births and 3 deaths.

Occupations.—The principal occupations of these Indians are trapping, hunting and fishing.

STURGEON LAKE BAND.

Reserve.—The reserve allotted to this band is situated on Kawawiagamak lake, and contains an area of 5,948 acres.

Vital Statistics.— There are 8 men, 8 women, 10 boys and 4 girls, making a total of 30. There was 1 birth and 2 deaths during the year.

Occupations.—These Indians depend entirely upon hunting and fishing for their subsistence.

I have, &c.,

JNO. P. WRIGHT,
Indian Agent.

MANITOBA SUPERINTENDENCY,
NORWAY HOUSE AGENCY,
WINNIPEG, MAN., June 25, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my report for the above agency for the time I was in charge. Being appointed agent on December 1, 1903, I left the Blood agency on the 21st of that month for Winnipeg, making that place my headquarters.

On February 6, 1904, I left Winnipeg, visiting all the reserves, with the exception of Little Grand Rapids and Pekangekum, my trip being with dog trains, returning to Winnipeg on April 1.

Reserves.—There are eleven reserves in the Norway House agency, which, counted from the south, are named as follows : Black River, 2,000 acres; Hollowwater River, 3,316 acres; Bloodvein River, 1,185 acres; these three occupied by Saulteaux Indians; Fisher River, 9,000 acres, occupied by Crees; Jackhead River, 2,850 acres; Berens River, 7,400 acres; Little Grand Rapids, 4,920 acres; Pekangekum, 2,080 acres; Poplar River, 3,800 acres, these five occupied by Saulteaux, and Norway House, 10,840 acres, and Cross Lake, 7,760 acres, occupied by Crees.

Vital Statistics.—The total population of the agency is 2,224, consisting of 482 men, 597 women and 1,145 children.

Health.—The general health of the whole agency has been good, with of course the usual exception of consumption and scrofula, cases which are always found on every reserve.

Provision has been made for a good supply of medicines at each reserve, and careful dispensers have done their best to treat the various sufferers.

Occupations.—Most of the Indians have ample chances to earn money at almost every season of the year. There are saw-mills or cord-wood camps. Fishing has been increasing and boatmen are in good demand.

Hunting last winter was particularly good, so that every man can make a good living if he wants to work.

Buildings.—The houses on the reserve are improving, many new ones having been erected during the last three or four years. Many are nicely furnished. These improvements apply principally to the Fisher River Indians, who are decidedly progressive.

Stock.—Cattle-stables are fairly well built, but the cattle industry, with the exception of Fisher River reserve, shows no progress whatever. Hay is very difficult to obtain on the east side of the lake; in most cases, especially at Norway House, the Indians have to cut hay standing up to their waists in water, consequently there is always a shortage of feed, and cattle die every spring. Another thing is that at the time they should be making hay, they are either making good wages at the fisheries or wasting several days doing nothing before and after treaty payments, which take place at the busy time of the year.

Education.—The boarding school at Norway House is doing good work, and credit must be given to the principal, Mr. Lousley, and the matron, Miss Yeomans, who have their hearts in the work.

Day schools at Fisher River and Berens River, both Methodist, are doing well, and Cross Lake, Roman Catholic, which has not long been opened, shows splendid progress, there being an average attendance of over twenty; the missionary there sees that the children do attend school. As to the rest of the day schools in this agency, the progress is nil and attendance very irregular, partly accounted for by the parents taking their families with them when fishing and hunting.

While on this subject, I should mention that there is a day school at Norway House, under the Church of England, doing good work, but not supported by the department.

Religion.—The Methodists have missionaries at Norway House, Cross Lake, Poplar River, Berens River, Fisher River and Bloodvein River; the Church of England at Norway House, Jackhead, Hollowwater River and Black River; the Roman Catholics at Cross Lake, and occasionally a priest visiting reserves from Black River, as far as Poplar River. Regular services are held at all the above places, well attended, and with, I trust, good results.

Characteristics.—The Indians of this agency are, as a rule, law-abiding and industrious. Some do not work, but the great majority do work and have enough to keep them very comfortable in every respect. Intemperance, I am glad to say, is not general, but at the same time large quantities of liquor are taken into several of the rivers and fishing stations where Indians are engaged, and it is well known that some obtain it frequently from the whites, who should know better, either as a present or trade for labour at fishing, &c. I am very glad to see that the department has taken action, after receiving my special report, and has arranged to send a detachment of Northwest Mounted Police to the northern end of the lake, which action I feel sure will at least lessen the evil of this abominable traffic with the Indians.

The morality of the Indians is fairly good, and no doubt will be much better when intemperance is reduced, as no doubt this evil leads to immorality, at least in many cases.

I have, &c.,

T. J. FLEETHAM,

Indian Agent.

MANITOBA SUPERINTENDENCY,
PAS AGENCY,
THE PAS, SASK., July 12, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the annual report of the Pas agency for the year ended June 30, 1904.

This agency comprises eight bands, but only seven reserves. Four of the reserves are situated on the banks of the Great Saskatchewan river, viz.: Grand Rapids, at the mouth where the river empties into Lake Winnipeg, Chemawawin, seventy miles upwards, adjoining Cedar lake; the Pas, which is the headquarters of the agency, seventy-seven miles up from Chemawawin, and Cumberland, adjoining Pine Island lake, seventy miles west of the Pas. The other reserves are Moose Lake, situated on the shores of Moose lake, which is about fifty miles north by west from Chemawawin, and Shoal Lake and Red Earth on the northwest slope of the Pas mountain, which are reached by ascending the Carrot river, which enters the Great Saskatchewan one mile west of the Pas, from which point they are distant, respectively, about one hundred and one hundred and twelve miles.

Although there is a stretch of country two hundred and fifty miles in extent between Grand Rapids in the east and Red Earth in the west, yet the natural features are much the same throughout, being composed of hay swamps, marshes and muskegs, fringed by low ridges covered with spruce, birch, poplar, willow and elder, with an occasional bluff of cedar, and interspersed with innumerable lakes and streams which find their outlet into the Great Saskatchewan. The unusually high water which has prevailed for these last four years seems to have restocked these streams and lakes with fish, and at present they are literally teeming with sturgeon, trout, whitefish, perch and pike.

Aquatic birds in great variety are also very numerous during open water, and any time during the open season the sportsman can have full satisfaction stalking the moose and deer or hunting the fur-bearing animals, of which nearly every variety known in North America is to be found in the district.

In the distant future when the channel of the Great Saskatchewan wears deep enough to drain this district or a canal is constructed between Cedar lake and Winnipegosis, this large extent of country, instead of being the hunter's paradise, will be the home of the husbandman, the richest prairie-land of Canada. Such is the country at present in which the seven reserves of the Pas agency are located.

The individual members of Peter Ballendine's band are scattered over the northern country from Beaver lake to the Churchill river. They have no reserve, but meet at Pelican Narrows to receive their annuity payments. This band formerly belonged to the Carlton agency, but owing to its being in closer touch with the Pas, was transferred after the payments of 1902.

Pelican Narrows is an old established Hudson's Bay Company's post, situated on the boundary between Saskatchewan and Athabasca.

In the month of August, 1903, we made our first visit and were much impressed with the complete and striking contrast between that part of the country and the rest of the agency. It is high and dry, hilly and rocky, up to Beaver lake it is a limestone formation and from there north can be found all the varieties of granite, lined everywhere with veins of quartz. From Beaver lake to the Narrows is a long chain of lakes with narrow channels between. The shores of these lakes are very romantic, being rag-

ged and threatening with protruding rocks and boulders, which through the persistent action of the waves have detached themselves and collapsed. The course of the river nearly all the way is encased within banks of solid rock and offers many formidable rapids and in many places terminates in real waterfalls which necessitate the canoes and their contents being carried across many portages.

The laborious ascension of these rapids, inch by inch, with alternating stretches of smooth water, the thundering noise of the falls, at the foot of which delicious white-fish can be caught, the magnificent and ever changing views of lakes dotted over with projecting quartz rock, the small islands and distant hills covered with young timber waving on the breeze and harmonizing with the rapid flow of the pure limpid waters, form a pleasing contrast with the low, damp and monotonous country in which the agency headquarters is situated.

After four days' hard work our party, composed of Inspector Marlatt, Dr. Larose and myself, with two canoes and six boatmen, reached Pelican Narrows at sunset. The Roman Catholic church, newly finished in substantial and artistic style, built on a gentle elevation and surrounded by a few small but neatly built cottages, ensconsed in the shelter of a sandy bay at the foot of a towering hill overlooking a lake with a thousand islands, formed a most delightful picture. A little to the east the eye was attracted by a square yellowish white spot offset above and beyond by the dark green spruce woods; this to our surprise was nothing less than a field of barley, a heavy crop and No. 1 quality, cultivated by Mr. Belanger, chief of the Hudson's Bay Company's post.

These, together with numerous little gardens of potatoes and vegetables, made us question if it were possible that we were four hundred and fifty miles north of the international boundary.

On our return trip, most of the rapids, twenty-four in number, were shot over with the canoes; this was much quicker and very much more exciting than the slow laborious time we had in getting up, and would be a very risky undertaking except under the guidance of the most skilled, experienced and watchful canoemen.

The area of each reserve and the population of each band are as follows :—

Grand Rapids.—4,646 acres, with a population of 118, consisting of 21 men, 26 women, 40 boys and 31 girls ; an increase of 10 over last year.

Chemawawin.—3,040 acres, with a population of 153, consisting of 34 men, 45 women, 43 boys and 31 girls ; a decrease of 9 during the year.

Moose Lake.—6,342 acres, with a population of 138, consisting of 30 men, 42 women, 31 boys and 35 girls; an increase of 3 over last year.

The Pas.—8,128 acres, with a population of 428, consisting of 94 men, 114 women, 108 boys and 112 girls; an increase of 2 over last year.

Shoal Lake.—2,240 acres, with a population of 60, consisting of 14 men, 14 women, 19 boys, and 13 girls; a decrease of 3 during the year.

Red Earth.—4,769 acres, with a population of 117, consisting of 28 men, 31 women, 29 boys, and 29 girls; a decrease of 2 during the year.

Cumberland.—4,025 acres, with a population of 161, consisting of 32 men, 48 women, 42 boys and 39 girls ; an increase of 9 during the year.

Peter Ballendine's band has a population of close on 400, but, owing to the long distances they have to come for their annuities, many of them only attend every alternate year. Only 266 were paid last year.

Tribe and Occupation.—Nearly all the Indians of this agency are of the Cree family, with a goodly admixture of white blood. They live by hunting and fishing, and many find employment with the Hudson's Bay Company and the Dominion and North West fish companies.

Buildings and Progress.—During the summer months many of them live in tents, but on some of the reserves they have now got comfortable houses and have discarded the tent altogether. There has been a rapid progress in the size, comfort and cleanli-

ness of their habitations. The old-fashioned fireplace is supplemented with a box-stove, and cooking stoves are getting quite common, as are also sewing-machines, auto-harps and phonographs. In these and many other things the Indians are rapidly adopting the ways of the white man.

The muskrats, which are the most profitable animals the Indians can hunt, owing to their food value as well as their fur, have been rapidly decreasing, as they do periodically, yet the year has been a fairly prosperous one, owing to the higher prices paid for other furs in the fore part of the season, and the many benefits accruing from the fishing industry.

Health and Sanitation.—The health of the Indians has been comparatively good throughout the agency. There was an epidemic of whooping-cough at the Pas, but it was of a mild form, and no deaths were attributable to that cause. Scarlet fever was prevalent in the far north for a while, and a number of Peter Ballendine's band, both adults and children, had it, but being of a mild character only one child died from a relapse ; no new cases have been reported since last April.

Scrofula is much less met with than formerly, owing to a proper treatment under the supervision of Dr. Larose. In nearly every case where his instructions are carried out a vast improvement is noticeable. The most frequent causes of death amongst the children are capillary bronchitis and protracted disorders of the digestive system, due to bad hygiene, carelessness, and improper feeding. It has been customary among the Indians, no matter what the disease might be, to have the house heated to the point of suffocation, and filled with sympathetic neighbours, causing the patient to die asphyxiated. These and many other such habits are persistently fought against with a fair degree of success.

Education.—The progress in the day schools is far from satisfactory, owing principally to the difficulty in getting teachers who understand how to teach Indian children. It is often said that the roving habits of the Indians are against any lasting benefit being derived by their children from the day school, but experience has shown that in every case where there was a teacher who had the proper qualifications, he could always show good results and have a fair average attendance all the year round. Unfortunately, teachers of this kind are not plentiful, for the simple reason that an Indian teacher, like many other complex organisms, must be born—they cannot be merely made. Our schools are far away from civilization, and the teacher's salary is small, and consequently there is no inducement for a man of ability to remain at the work. Under these circumstances, the industrial or boarding school is the only remedy. We have eight schools in this agency, and at present only three teachers, one having left in January and four at the end of the year. Fortunately, the three that are remaining are above the average. Mr. Macdougall, at the Pas, has all the required qualifications, and is, no doubt, one of the best Indian school teachers in the Territories ; Mr. Seymour, of Cumberland, has only been a year at the work, and out of the material he had to begin with has shown as good results as could be expected ; Mr. Cachrane, of Shoal Lake, has had some years of experience, and, under the circumstances, gets along fairly well.

Religion and Morality.—The Indians of this agency are all Christians, except a few at Red Earth, who are modern pagans, but their numbers are rapidly decreasing. The great majority on all the reserves belong to the Church of England. In Peter Ballendine's band the Roman Catholics predominate. They all attend their religious services with great regularity. Their morals are comparatively good, and no intemperance has been so far reliably reported.

I have, &c.,

JOSEPH COURTNEY,

Indian Agent.

PROVINCE OF MANITOBA,
PORTAGE LA PRAIRIE AND MANITOWAPAH AGENCIES,
September 7, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following annual report of my agencies for the year ended June 30, 1904.

PORTAGE LA PRAIRIE AGENCY.

Treaty No. 1.

Reserves.—There are five reserves in this agency.

Roseau River reserve, situated at the confluence of the Red and Roseau rivers, has an area of about 5,670 acres. It is well adapted for grain and stock raising, as the soil is rich, and there is plenty of hay in ordinary seasons ; but last spring there was too much rain in that district, and consequently some of the crop was drowned out and hay-lands were under water until late in the season. Along the streams there is enough wood for fuel, and timber for small buildings.

Roseau River Rapids reserve, situated on the Roseau river, about eighteen miles from the mouth, has an area of 800 acres, and at present the department is negotiating for the purchase of about two sections more in compliance with a request made by these Indians when they agreed to dispose of the twelve sections on the reserve at the mouth of the river. This reserve is well adapted for grain-growing ; and the addition will give them good pasture and hay land.

Long Plain reserve is situated about fifteen miles southwest of Portage la Prairie on the north side of the Assiniboine river, in township 10, range 8, west of he 1st meridian. It has an area of 10,816 acres, is well wooded, and there is some good farming land.

Swan Lake reserve is situated on the north side of Swan lake, in township 5, range 11, west of the 1st meridian, and contains 9,634 acres. It is well adapted for grain and stock raising, as there is plenty of hay and water, and sufficient high land for farming.

Indian Gardens reserve is situated near the south bank of the Assiniboine river. It comprises section 11, in township 9, range 9, west of the 1st meridian, and contains 640 acres. It is all first-class arable land without any wood and very little hay.

Tribe.—The Indians of this agency are all of the Ojibbewa tribe, with more or less strain of white man's blood.

Vital Statistics.—The population of the different bands is as follows :—Roseau, including the Rapids 196; Long Plain, 133; Swan Lake, 104, making a grand total of 433 according to the pay-sheets at date of writing. At Roseau River and Rapids there were 4 births, and 16 deaths; at Long Plain, 9 births and 7 deaths; and at Swan Lake and Indian Gardens, 2 births and 2 deaths.

Health and Sanitation.—The health of the Indians this year has been about as usual, there have been no epidemics, but the late spring made it very hard for those affected with tubercular troubles, and to this disease can be charged the majority of the deaths.

The usual sanitary precautions of cleaning up and burning rubbish on all the reserves have been taken, but at the earliest possible date in the spring the Indians

move out of their houses into tents, which they move from place to place and thus take advantage of natural sanitation, and an improvement can be noted in their health from the time they go into tents.

Occupations.—On the Roseau River reserve, grain and stock raising are both carried on, but not on a sufficient extent to render the Indians an independence. However, there is always a demand for farm labour that brings a cash return, which to the Indian is much surer than taking chances on a crop, and consequently his farming suffers proportionately. At the Roseau Rapids grain-growings followed principally, but the attraction of cash wages held out by the surrounding farmers is detrimental to good steady work on the Indian farms. However, in working for the settlers the Indians are learning good practical farming, and in time I think they will derive the benefit. All these Indians are good hunters, and in ordinary seasons seem to make a good living without very great exertion.

On the Indian Gardens reserve, grain-growing, only, is carried on. At Swan Lake both grain and stock raising are followed with success. At Long Plain grain farming is carried on, but only on a small scale. The Indians of all these reserves can get all the work they want for cash wages with the surrounding settlers. Together with hunting, fishing, gathering snakeroot, picking berries, &c., they make a good living, and we seldom hear of their being hard up except when they are living on their reserves continuously.

Buildings, Stock, and Farm Implements.—Log buildings with pole and mud roof predominate on all the reserves ; nearly all have lumber floors, and shingle roofs are increasing very fast.

Those that take an interest in their cattle, provide plenty of hay and take good care of them ; but those who keep only a few head simply to gratify the desire of the department, take no interest in their cattle, often run short of fodder, lose a large per centage of their calves every year, and might as well be out of the business altogether.

Their supply of implements and tools is sufficient for their requirements, except in a few instances, and year by year they buy more of these articles for themselves.

Education.—There are two day schools in the agency, one at Swan Lake, at which it has been most difficult to get a regular attendance ; and a new day school was opened at Roseau Rapids reserve in October, 1903, at which the attendance has been very good.

Religion.—At Swan Lake the teacher looks after the spiritual welfare of the Indians, under the auspices of the Presbyterian Church.

At Roseau River reserve, a priest of the Roman Catholic Church visits periodically, and attends to the spiritual wants of the Indians.

At Roseau Rapids, Indian Gardens, and Long Plain reserves the old forms of pagan worship still prevail, and the Indians have expressed a desire not to be interfered with by a minister of any Christian denomination.

Characteristics and Progress.—Progress on the reserve is apparently very slow, but there are many reasons for this. An Indian will work for a white settler from seven in the morning till six in the evening without thought of shirking his work, but a few hours a day is the best effort he can put forth for himself on the reserve. The majority of the older generation are opposed to progress, and a progressive Indian has too many relatives and friends to participate in his prosperity. Until the men of the present generation learn to do hard work continuously, I think they do better working for the settlers, and in the lumber and cord-wood camps.

Temperance and Morality.—Intemperance and immorality run hand in hand, and as far as my experience goes, where there is one there is also the other. The Indians of all these reserves squander a lot of money buying liquor, and paying fines at the police court ; but punishment and fines will not stop them, neither will it make them tell where they got it, there are always a class of white men and half-breeds around who will supply them with liquor, not altogether for the profit there is in it, but simply because it is prohibited by law. Contact with the whites certainly has a degenerating

effect upon the Indian, physically and morally ; and although mentally he develops greatly, there seems to be a lack of character to withstand almost any kind of evil temptation.

General Remarks.—Although the Indians made a good living all winter by hunting and the sale of dry wood, yet on account of the long winter, late spring, and their unfortunate characteristic of not providing ahead, they were very hard up in the spring, although they soon recovered when the weather opened sufficiently to trap muskrats.

PORTAGE LA PRAIRIE SIOUX.

These Indians own and live on a tract of land, about 26 acres, purchased by themselves within the town limits. They also have lot No. 14 of the parish of Portage la Prairie, given to them by the Dominion government, but up to date they have refused to make any use of it. The adults are a big strapping type of Indian, but many of the children show signs of tubercular troubles. They have good houses and gardens and make a good living working for the farmers in the district. When they all return home in the fall, they usually squander a lot of money in intoxicating liquor and paying fines in the police court, but they will very seldom give any information as to where they got the liquor. I should like to see them on a reserve away from town influence, and I believe there are some of them who would develop into farmers.

There is a Sioux boarding school in the town with accommodation for forty pupils, and the government allows a per capita grant for twenty. There are usually from twenty-two to twenty-five pupils in the school, and more could be obtained, did the per capita grant allow.

Mr. W. A. Hendry is principal of the school, and his sister has charge of the teaching. They are much interested in the work and have the confidence of the pupils and their parents to an extraordinary extent, in fact it is like a family affair.

The principal, his wife, and Miss Hendry are all interested in the spiritual welfare of the little band, under the auspices of the Presbyterian Church, and hold a weekly service in the village church, as well as many other meetings.

MANITOWAPAH AGENCY.

There are ten reserves in this agency, of which Sandy Bay is in Treaty No. 1, Shoal River in No. 4; and the rest are in No. 2.

Reserves.—Sandy Bay reserve is situated on the southwest shore of Lake Manitoba, in township 18, range 9, west of the 1st meridian. It has an area of 12,160 acres, the greater part of which is covered with scrub and bush. It is not suitable for grain farming, although there is sufficient good land for gardens and a good supply of hay.

Lake Manitoba reserve is situated on the northeast shore of Lake Manitoba, in township 22, ranges 8 and 9, west of the 1st meridian. It has an area of 9,472 acres. It is much broken by arms of the lake, is covered by a heavy growth of brush and timber, and quite unsuited for farming. There is enough good land for gardens and a good supply of hay.

Ebb and Flow Lake reserve is situated on the west shore of Ebb and Flow lake in townships 23 and 24, ranges 11 and 12, west of the 1st meridian. It has an area of 10,816 acres. It is unsuitable for farming, but has a good supply of hay and plenty of timber.

Fairford reserve is situated on the Fairford river, in townships 30 and 31, range 9, west of the 1st meridian. It has an area of 11,712 acres. It is well supplied with good timber and hay, and has plenty of good land for gardens.

Little Saskatchewan reserve is situated on the west shore of Lake St. Martin, in township 31, range 8 west of the 1st meridian, and has an area of 3,200. It is well supplied with wood and hay, but is not adapted for farming.

Lake St. Martin reserve is situated on the north end of Lake St. Martin, in township 32, ranges 7 and 8, west of the 1st meridian, and has an area of 4,032 acres ; is well wooded, and has a fair supply of hay, but is not adapted for farming.

Crane River reserve is situated on the east side of Crane river, in township 29, range 13, west of the 1st meridian. It contains 7,936 acres. There is a quantity of good spruce timber and sufficient good land for gardens. Being a little short of hay land, a piece of land across the river, with good hay meadows, has been reserved for the use of the band.

Waterhen River reserve is situated on the south end of Waterhen lake, in township 34, range 13, west of the 1st meridian. It has an area of 4,608 acres. It has a good supply of timber and hay, but is unsuited for farming.

Pine Creek reserve is situated on the west shore of Lake Winnipegosis, in township 35, ranges 19 and 20, west of the 1st meridian. It has an area of about 12,000 acres, is well supplied with hay and timber, but is not adapted to farming.

Shoal River reserve is composed of one small reserve on Swan lake, and four small reserves near the mouth of Shoal river, which is situated on the south end of Dawson bay, on Lake Winnipegosis. They have an area altogether of about 5,500 acres. They are all well wooded with poplar and some spruce intermixed; they have sufficient hay-land, but are not adapted for farming.

Tribe.—Nearly all the Indians in this agency are Saulteaux, but the members of the Shoal River band are principally Crees. There are many French, English and Scotch half-breeds, in fact there are very few pure-blooded Indians in the agency.

Vital Statistics.—The population of the whole agency is 1,376, according to the last annuity payments ; during the year there were 52 births and 30 deaths.

Health and Sanitation.—The health of the Indians generally has been good during the year. On the Fairford reserves there has been an epidemic of whooping cough this spring and summer, but they are getting well over it now, with but few fatalities. On Lake Manitoba reserve and Sandy Bay there has been quite a lot of itch, but it is disappearing through treatment. The usual coughs, colds, scrofula and consumptive cases prevailed on all the reserves, but not to any greater extent than in other years.

The usual sanitary precautions have been carried out, such as cleaning up and burning rubbish, and as nearly all the Indians move into tents in the spring, they thus practise the best of sanitation.

Resources and Occupations.—Nearly all the Indians have small gardens, and over and above that, the raising of live stock is about the only civilized industry they can take up on the reserves, as the land is not suitable for grain-raising. The Indians that take an interest in their cattle do pretty well, and are increasing their herds, but those who only keep a few head to please the department would do better if they went out of the business altogether and followed something they had more liking for. There is plenty of fish and game yet, and there is little need for the Indians to go hungry in the winter-time. Year by year they are learning how to earn more money cutting wood, rails, and in the lumber camps : and at Fairford the gypsum mine and mill are a regular Ophir to the Indians there, as they can get all the work they want winter and summer at good wages. They also earn a lot of money in the hay and harvest fields and during the threshing season. Digging senega-root, picking berries and fishing are other resources from which they earn considerable money.

Buildings and Stock.—All buildings are of log, some houses have shingle roofs, and nearly all have lumber floors. The stables have log walls with poles and hay on the roof, and when they are mudded or plastered in the autumn they fulfil the purpose for which they are intended admirably.

On account of the unusually long winter I expected a great loss amongst the cattle, but I am glad to say that the Indians did much better than many of their half-breed and white neighbours, and their loss of grown cattle was not heavy although a number of calves died shortly after birth. Strange as it may appear, the Indians that

had the biggest herds and took an interest in their cattle did not lose any, while those that had only a few head did not provide sufficient for them, simply because they are not interested, and only keep them to please the department or its officials.

Education.—There are day schools in operation on each reserve, except Crane River and two at Fairford. But as the parents have to keep moving from place to place either getting work or hunting, it is impossible for the attendance at the schools to be anything but irregular, consequently the state of education is not advanced. There is a very fine large stone boarding school adjoining the Pine Creek reserve owned and conducted by the Roman Catholic Church, with a staff of professional teachers from the Order of the Rev. Franciscan Sisters. The department allows this school a per capita grant for fifty-five boarding, and fifteen day scholars. The advantage of professional teaching can be noticed here in all branches, in fact in the order of the whole institution. A pupil attending a school like this will receive more benefit in one year than he will in five at the ordinary Indian day school. I am glad to say there is another large boarding school being built on the Sandy Bay reserve. This also will be conducted under the auspices of the Roman Catholic Church.

Religion.—The Church of England has churches at Upper Fairford, Little Saskatchewan, and Shoal River, and also a catechist at St. Martins; the Baptists have churches at Lower Fairford and St. Martins ; and the Roman Catholics at Sandy Bay, Lake Manitoba, Ebb and Fow, Waterhen and Pine Creek.

Progress.—The progress of the Indians is certainly slow, but as long as they can make their living so easily by hunting and fishing and working a day or two when ever they feel like it, they cannot be expected to show anything very wonderful in the way of advancement. However, they dress better, live better, talk better, than when I came here five years ago, and, best of all, they have given up begging for everything they could think of.

Temperance and Morality.—I am pleased to say that not a single case of intoxication on the reserves has been reported to me during the year, not that I am not perfectly certain that they do get liquor, but they keep it so quiet that I only hear of it through some round-about source a long time afterwards, and it is impossible to get any proof. Many of the Indians can now get work up the lake or with settlers near their reserves, and thus avoid coming down to the railway towns for haying and harvest, and mixing up with tough drinking crews at the threshings.

I have only heard of one case of immorality on the reserves and that was settled amongst themselves.

General Remarks.—When visiting the reserves this year to make the annuity payments we found all the Indians well clothed, healthy generally, and in a contented state of mind. I have no hesitation in stating that I consider them as progressing satisfactorily.

The day school teachers on all the reserves have given me all assistance that lay in their power.

I have, &c.,

S. SWINFORD,

Indian Agent.

MANITOBA SUPERINTENDENCY,
RAINY RIVER DISTRICT,
RAT PORTAGE AGENCY,
RAT PORTAGE, ONT., September 8, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on the Rat Portage and Savanne agencies for the year ended June 30, 1904.

The headquarters of these agencies is situated in the town of Rat Portage, in the post office building.

RAT PORTAGE AGENCY.

This agency comprises the following bands, viz.:—Rat Portage, Shoal Lake, Nos. 39 and 40, Northwest Angle, Nos. 33, 34 and 37, Buffalo Bay, Big Island, Assabaska, Whitefish Bay and Islington, making a total of eleven bands.

RAT PORTAGE BAND.

Reserves.—The reserves of this band are No. 38 A, B and C. The first named is situated on Clearwater bay, Lake of the Woods ; its area is 8,000 acres ; 38 B is situated on Matheson's bay, near the town of Rat Portage, its area is 5,280 acres ; and 38 C is situated at the Dalles, on the Winnipeg river, a distance of about ten miles north of the town of Rat Portage ; its area is 800 acres. These reserves are well timbered with spruce, poplar and jack and Norway pine. On reserves A and B there are several veins of rich gold-bearing quartz ; the remainder consists of hay-lands.

Tribe.—All the Indians of this agency belong to the Ojibbewa tribe.

Vital Statistics.—The population of this band is 139, consisting of 35 men, 43 women, 36 boys and 25 girls. There were 9 births and no deaths during the year.

Health and Sanitation.—The health of the band has been good; all the Indians have been vaccinated and regularly attended to by Dr. Hanson.

Occupations.—Fishing, hunting, berry-picking and wild-rice harvesting and, in the winter, cutting cord-wood are the principal occupations of this band. A few of them put in fairly good gardens.

Buildings.—Their buildings are of log, and are small and of an inferior class. Two new houses of a better class have been built during the year.

Education.—There is no day school on these reserves, but a number of the children are attending the Rat Portage boarding school.

Religion.—There are 39 Anglicans, 35 Roman Catholics and 65 pagans in this band.

Temperance and Morality.—These Indians are very much addicted to the use of intoxicants and will use them to excess whenever they can possibly procure them; otherwise they are fairly moral.

SHOAL LAKE BANDS, NOS. 39 AND 40.

Reserves.—The reserves of these bands are on the west and northwest shore of Shoal lake and partly in the province of Manitoba. Their area is 16,205 acres, and they are timbered with spruce, cedar and poplar; there is a considerable amount of good agricultural land on these reserves.

Vital Statistics.—The population of the two bands consists of 32 men, 40 women, 40 boys and 32 girls, making a total of 144. There were 5 births and 5 deaths during the year.

Health and Sanitation.—The health of this band has been good; all the Indians have been vaccinated.

Occupations.—Working in lumber camps and on steamboats, hunting, berry and wild-rice picking are the principal occupations of these Indians. Some few of them have had good gardens of potatoes and other vegetables.

Education.—There is no day school on these reserves, but there is a good boarding school, and most of the children attend this school.

Temperance and Morality.—All these Indians are addicted to the use of intoxicants and, although a strict watch is kept on them, yet they appear to be able to get liquor when they want to do so or have money to pay for it; otherwise they are fairly moral.

NORTH-WEST ANGLE BANDS, NOS. 33, 34 AND 37.

Reserves.—These bands hold reserves, 33 A, on Whitefish bay, 33 B, at Northwest Angle, 34, on Lake of the Woods, 34 A, on Whitefish bay, 34 B, on Shoal lake, 34 C at Northwest angle; also 34 C on Lake of the Woods, No. 37 on Big island, 37 Rainy river, 37 A, Shoal lake, 37 B, Northwest angle, Lake of the Woods, and 37 C, at Northwest Angle river, in Manitoba. The combined area is 20,983 acres. On all the reserves there is a quantity of good timber, namely, pine, tamarack, spruce, cedar and poplar.

Vital Statistics.—The combined population of the bands consists of 37 men, 52 women, 31 boys and 42 girls. There were 4 births and 9 deaths during the year.

Health and Sanitation.—The general health of the Indians has been good; a few cases of consumption and scrofula exist, which in most instances result fatally. All the Indians have been attended to by Dr. Hanson, and vaccinated.

Occupations.—A number of these Indians put in good gardens with good results. They generally make their living by working in the lumber and mining camps and on steamboats, hunting, fishing, picking berries and wild rice; and in this way they earn a large amount of money and live well.

Education.—There are no schools on these reserves, as the Indians are very much opposed to having their children educated; they are particularly opposed to any form of religion. However, some of them have sent their children to the boarding schools at Shoal Lake and Rat Portage.

Religion.—There are 4 Christians and 158 pagans in these bands.

Temperance and Morality.—All these Indians are more or less addicted to the use of intoxicants when they can in any way procure them, but otherwise they are fairly moral and law-abiding.

BUFFALO BAY BAND.

Reserve.—This reserve is situated on Buffalo bay, Lake of the Woods, in the province of Manitoba; its area is 5,763 acres, and it is well timbered with different kinds of wood, interspersed with hay meadows and swamps.

Vital Statistics.—The population of this band is 29, consisting of 9 men, 10 women, 8 boys and 2 girls. There were 5 deaths and no births during the year.

Health and Sanitation.—The health of this band was not good; measles and chicken-pox visited the reserve during the fall and winter, and, although they were attended by the medical officer, yet three or four cases resulted fatally; but with the warm weather these diseases disappeared. All the Indians have been vaccinated, and sanitary precautions are fairly well attended to.

Occupations.—Hunting, fishing, berry and wild rice picking are the principal occupations of this band. A few of them do a small amount of gardening.

Education.—These Indians, being pagans, object to any form of education, and consequently there is no school on the reserve.

Religion.—All these Indians are pagans.

Temperance and Morality.—These Indians are in the habit of using intoxicants to excess whenever they can procure them, and as they live near the boundary line they can always get liquor at Warroad, on the American side; otherwise they are fairly moral.

BIG ISLAND BAND.

Reserves.—This band has the following reserves allotted to it: 31 A, on Nangashing bay; 31 B and 31 C, on Lake of the Woods; 31 D, E, F, G and H, on Big island, Lake of the Woods. The combined area is 8,737 acres. These reserves are timbered with a large quantity of merchantable timber and mixed wood, and an immense quantity of dry wood. There are also hay swamps.

Vital Statistics.—The population of this band is 159, as follows: 33 men, 40 women, 50 boys and 36 girls. There were 8 births and 6 deaths during the year.

Health and Sanitation.—The general health of the band has been good, no epidemic having visited the reserve; all the Indians are vaccinated, and sanitary measures have been fairly well complied with. A few cases of scrofula and consumption exist in the band, for which nothing can be done.

Occupations.—A number of the band have very fair gardens of potatoes and other vegetables ; some work in the lumber camps and on the steamers during the summer months, but their principal occupations are hunting, fishing and picking berries and wild rice, in which way they make a good living.

Education.—There is no school on these reserves, as the majority of the Indians are pagans, and very much opposed to having their children educated.

Religion.—There are 152 pagans, 2 Anglicans, 2 Roman Catholics and 3 Presbyterians in this band.

Temperance and Morality.—While the Indians of this band are fairly moral and law-abiding, still they are addicted to the use of intoxicants.

WHITEFISH BAY BAND.

Reserves.—The following reserves have been allotted to this band:—32A, on Whitefish bay; 32B, on Yellow Girl bay; and 32C, on Sabasking bay, the combined area of which is 10,599 acres, all heavily interspersed with good merchantable timber and hay swamps.

Vital Statistics.—The population of this band is 53, as follows:—15 men, 17 women, 7 boys and 14 girls. There were 4 births and 3 deaths in this band during the year.

Health and Sanitation.—The health of the band has been fairly good. Sanitary measures have been fairly well carried out and all the Indians vaccinated.

Occupations.—Some of these Indians do a little gardening and have also put in a lot of potatoes, but their chief occupations are hunting, fishing and berry-picking.

Education.—There is no school on this reserve, but a number of the children are at the Rat Portage and Shoal Lake boarding schools.

Religion.—There are 10 Roman Catholics, 1 Anglican, 2 Presbyterians and 40 pagans in this band.

Temperance and Morality.—Generally speaking, these Indians are moral, but the majority of them are fond of liquor.

ASSABASKA BAND.

Reserves.—The reserves of this band are nine in number, as follows:—35A, on Nangashing bay; 35B, on Obabeiking bay; 35C, 35D, 35F, 35H, 35J, on Sabasking bay; 35E, Little Grassy river, and 35G, Big Grassy river, are on Lake of the Woods. The combined area is 21,241 acres. All these reserves have a large quantity of merchantable timber on them, and the soil in many places is well adapted for cultivation if properly cleared up.

Vital Statistics.—The population of this band is 147, as follows:—36 men, 41 women, 31 boys and 39 girls. There were 4 births and 8 deaths in this band during the year.

Health and Sanitation.—The general health of these Indians has been good, although they were visited by measles and chicken-pox. These, however, have completely disappeared. Sanitary measures have been taken, and all the Indians vaccinated.

Occupations.—Hunting, fishing and berry-picking are their principal occupations. A number of the men are employed by the lumber and mining companies. Their gardens are well cultivated.

Buildings.—The buildings are of log, small but clean and comfortable.

Education.—There is a day school on reserve 35H, with a fair attendance. The teacher is taking considerable interest in his work and making fair progress.

Religion.—There are 142 pagans and 5 Christians in this band.

Temperance and Morality.—The majority of this band are very fond of intoxicants whenever they can possibly get them; on the whole they are fairly moral.

ISLINGTON BAND.

Reserves.—This band has three reserves, as follows:—Islington, on the Winnipeg and White Dog rivers; Swan Lake reserve, on Swan lake; and One Man's Lake reserve. The combined area is 24,899 acres. These reserves are well timbered with tamarack, spruce, jack pine and poplar. The ground is rough and stony; the soil is good, and grain and vegetables can be successfully grown when properly cultivated; there is also a large quantity of hay on these reserves.

Vital Statistics.—The population of this band is 159, as follows:—45 men, 42 women, 40 boys and 32 girls. There were 6 births and 8 deaths.

Health and Sanitation.—There are a number of cases of consumption and scrofula in this band; otherwise the health of the band is good. Sanitary measures have been well attended to, and all the Indians have been vaccinated; their houses are neat and clean, and all necessary precautions have been taken against the spread of disease.

Occupations.—The majority of the men work for the railroad and steamboat companies and as guides to explorers; also at hunting, fishing, picking berries and wild rice. A number of the band put in nice patches of potatoes and vegetable gardens. Their stock is well taken care of; abundance of hay is supplied and good stables.

Buildings.—The buildings are of log, of a good size, well finished, with shingled roofs, and in most cases painted, and present a neat and tidy appearance. Their fields are well fenced, in most cases with barbed wire.

Education.—There is a good day school on this reserve under the auspices of the Church of England. The school was opened in October last, with Mr. D. W. Wood as teacher, and a good attendance, and the pupils are making fair progress.

Religion.—On this reserve there is a nice church built by the Anglican denomination, and services and Sunday school are regularly held. There are 152 Anglicans, 2 Roman Catholics and 5 pagans in the band.

Temperance and Morality.—I regret to say that the majority of this band are both intemperate and immoral to a certain extent, and require to be constantly watched while in town.

GENERAL REMARKS.

The Indians in this agency make a good living by hunting, fishing, berry-picking, cutting cord-wood, working in the lumber and mining camps and as guides and steamboat men. They could save money if they were not so much addicted to the use of intoxicants. There are two Indians of the Islington band who deserve mention; they have been working for the railway survey party. Their names are James Land and Moses Land. The former has $183 and the latter $70 in the Post Office savings bank, and I trust they will continue to put in more.

The principal drawback we have to contend with in this place is the frequent supplying of liquor to Indians by unscrupulous persons, and although several have been severely punished for so doing, still I find it very difficult to suppress this evil, but stringent efforts are being made to do so.

During the year four Indians have been drowned through being intoxicated, and one killed on the railway by accident.

SAVANNE AGENCY.

This agency comprises the following bands, viz.:—Lac des Mille Lacs, Wabigoon, Eagle Lake, Lac Seul, Wabuskang and Grassy Narrows bands.

LAC DES MILLE LACS BAND.

Reserve.—The reserves of this band are 22 A I, on Lac des Mille Lacs, and 22 A 2, on Seine river ; their combined area is 12,227 acres.

Tribe.—All the Indians of this agency belong to the Ojibbewa tribe.

Vital Statistics.—The population of this band is 70, as follows: 11 men, 13 women, 19 boys and 27 girls. There were 3 births and 4 deaths during the year.

Health and Sanitation.—The health of this band has on the whole been good. There has been no epidemic of any kind amongst them. Sanitary measures have been well carried out, and all the Indians vaccinated.

Occupations.—Working at the logging camps and saw-mills, hunting, fishing and picking berries and wild rice are their principal occupations, while a few of them put in gardens and potatoes.

Buildings.—Their buildings are of log, of good size, and well finished. They are fairly well furnished and kept clean and neat.

Stock.—Their stock is in fine order and well cared for, but they have not much.

Education.—There is no school on this reserve, all the Indians being pagans; they are opposed to having their children educated.

Religion.—All these Indians are pagans.

Temperance and Morality.—The morals of the band are very good; no complaints have been received or made against any of them. They will make use of intoxicants whenever they can possibly procure them, but as no liquor is sold in Savanne, the temptation does not often occur. They are law-abiding and civil.

WABIGOON BAND.

Reserve.—This reserve is situated on Little Wabigoon lake, the area is 12,872 acres, well timbered with spruce, tamarack and poplar.

Vital Statistics.—The population of this band is 88 as follows: 16 men, 26 women, 20 boys and 26 girls. There was 1 birth and 2 deaths in the band during the year.

Health and Sanitation.—Measles and scarlatina were on the reserve, but without any fatal results; otherwise the health of the band has been good. All the Indians have been vaccinated.

Occupations.—A few of this band put in vegetable gardens and potatoes; some work in the lumber and mining camps, but their principal occupations are hunting, fishing and berry-picking.

Buildings.—Their buildings are of log, and of an inferior class, but clean and comfortable.

Education.—There is a good school on this reserve under the auspices of the Church of England, Mr. Newton being teacher. There is a good attendance, and fair progress is being made by the pupils.

Religion.—There are 83 pagans, 4 Roman Catholics and 1 Anglican in this band.

Temperance and Morality.—While I have not heard any complaint as to their morality, still they are all, both men and women, very much addicted to the excessive use of liquor, which they can procure when visiting the small towns in the vicinity of the reserves, and although several of them have been punished for so doing, yet it appears to have no good effect on the majority of the band.

EAGLE LAKE BAND.

Reserve.—This reserve is situated on the east side of Eagle lake, and contains an area of 8,882 acres. There was a quantity of merchantable timber on this reserve,

which was cut during the winter, and dues amounting to $1,424.28 have been collected and placed to the credit of the band. The soil is of a good quality for roots, grain and vegetables.

Vital Statistics.—The population of this band is 69, as follows: 18 men, 16 women, 20 boys and 15 girls. There were 2 births and 6 deaths in the band during the year.

Health and Sanitation.—Sanitary measures have been carried out, and all the Indians have been vaccinated; consumption and scrofula are the principal diseases these Indians are subject to. The general health has been fair.

Occupations.—Some of the Indians find employment in the lumber camps, but their chief occupations are hunting, fishing and berry-picking, while a few of them have very good gardens and patches of potatoes.

Buildings.—Their buildings are of log, of fair size, and well finished. They are fairly well furnished and clean and comfortable.

Stock.—They are totally destitute of cattle.

Farm Implements.—They have all the implements they require.

Education.—There is no school on the reserve at present, as it had to be closed owing to the lack of interest taken by the Indians in the education of their children.

Religion.—There are 4 Anglicans, 5 Roman Catholics and 60 pagans in the band.

Temperance and Morality.—The majority of this band are much addicted to the abuse of intoxicants, which I am given to understand are frequently supplied them by unscrupulous white men and half-breeds. Their morality is fair.

LAC SEUL BAND.

Reserve.—This reserve is situated on the southeast shore of Lac Seul or Lonely lake; a fragment of this band known as 'Frenchman's Head,' is situated about fifteen miles south. There is also another fragment of this band on Sawbill lake, four miles north of Ignace station; these have been ordered to return to their reserve, as they have no right there. The Lac Seul reserve has an area of 49,000 acres, the greater portion of which is well timbered with pine, spruce, tamarack, birch and poplar, and a portion of the reserve is well adapted for cultivation. The remainder is rough and stony, with some good hay swamps and meadows.

Vital Statistics.—The combined population of this band is 571, as follows :—130 men, 125 women, 166 boys and 149 girls. There were 19 births and 1 death during the year.

Health and Sanitation.—The health of the band has been fair, the chief trouble being scrofula and consumption. All the Indians have been vaccinated and all necessary precautions taken against the spread of the disease.

Occupations.—Hunting, fishing, berry-picking, cultivating their gardens, working for the Hudson's Bay Company and travellers, are their principal ways of making a living.

Buildings.—Their buildings are of log, of fair size, well built and the majority with shingled roofs of their own make; they are fairly well furnished and comfortable.

Stock.—Their stock is all in good condition and well cared for both as to stabling and feed.

Education.—The day school at Canoe River has been indefinitely closed owing to lack of pupils. The school at Frenchman's Head was opened on August 11, 1903, with a good attendance ; this, however, has been gradually falling off for the past three months and this school will eventually have to be closed, as, owing to the Indians' mode of life, it is impossible to have a good attendance.

Religion.—There are 428 Anglicans, 102 Roman Catholics and 41 pagans. There is a church at Frenchman's Head, and services are regularly held by a Church of England clergyman, and the Indians attend very regularly.

Temperance and Morality.—The majority of these Indians are addicted to strong drink ; during the winter two persons were punished for supplying them with liquor. They are fairly moral.

WABUSKANG BAND.

Reserve.—This reserve is situated on Wabuskang lake, its area being 8,042 acres, timbered with spruce, jackpine, poplar and other species of wood. There are also small hay swamps.

Vital Statistics.—The population of this band is 55, as follows :—11 men, 15 women, 15 boys and 14 girls; there were 2 births and 5 deaths during the year.

Health and Sanitation.—The health of this band has not been a good as could be desired; scarlatina, measles and chicken-pox were prevalent on the reserve for a time, resulting fatally in some cases. Sanitary precautions have been taken and all the Indians vaccinated, and at present their health is good.

Occupations.—Fishing, hunting and picking berries and rice are the principal occupations of this band; a few of them put in a small quantity of potatoes and vegetables.

Education.—There is a school on the reserve, but owing to a very small and irregular attendance, it was closed at the end of the present fiscal year.

Religion.—There are 28 Anglicans, 8 Roman Catholics and 19 pagans in the band.

Temperance and Morality.—The Indians of this band are intemperate, and as they frequently visit the towns on the line of the Canadian Pacific railway, they are sure to meet with some one that will procure liquor for them. Their sense of morality is doubtful.

GRASSY NARROWS BAND.

This band is a fragment of the Wabuskang band, but treated separately.

Reserve.—The reserve is situated on the English river ; its area is 10,244 acres.

Vital Statistics.—The population of this band is 119, as follows :—28 men, 32 women, 32 boys and 27 girls. There were 4 births and 4 deaths during the year and 5 joined this band by marriage.

Health and Sanitation.—Sanitary measures have been fairly well carried out ; all rubbish has been raked up and burnt and all Indians have been vaccinated.

Buildings.—Their buildings are small but clean and in a measure comfortable.

Occupations.—There are a number of these Indians working for the railway survey parties and traders and some of them put in good patches of potatoes and vegetable gardens, but their main occupations are fishing, hunting and picking berries and rice, in which they make a good living.

Education.—There is a good school-house on the reserve, but it has been closed for some time, as the attendance was so small and irregular.

Religion.—There are 9 Anglicans, 67 Roman Catholics and 43 pagans in this band.

Temperance and Morality.—A number of these Indians are intemperate whenever they can possibly get liquor; a few of them, however, are temperate. They are law-abiding, civil and in a manner moral.

General Remarks.—I regret to say that I find the Indians of these agencies making but very slow progress; they appear to go on from year to year in the old pagan way. The chief drawback is the liquor question; it makes no difference how strict a watch is kept on them, they appear to have but little trouble to get all they want. During the year several have been punished by imprisonment and fines, yet the traffic goes on. I have had six convictions against whites for supplying liquor to Indians, and three Indians have been convicted before me and quite a number before the police magistrate of the town. It is very difficult to put a stop to this evil, but every effort possible is being made to do so.

During the annuity payments I was assisted by Agent Wright, of Fort Frances agency, and I accompanied him on the payments in his agency, all passing off satisfactorily.

I have, &c.,

R. S. McKENZIE,

Indian Agent.

MANITOBA SUPERINTENDENCY,
LAKE MANITOBA INSPECTORATE,
PORTAGE LA PRAIRIE, October 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to present my seventh annual report upon Indian affairs in this inspectorate during the fiscal year ended June 30, 1904, and to the date above mentioned in the present fiscal term.

This inspectorate includes four agencies, namely: Portage la Prairie, Manitowapah, Birtle and the Pas. The first three are in the province of Manitoba, the last in the district of Saskatchewan, with the exception of one band, which takes its annuity at Pelican Narrows, in the district of Athabasca. This band has no regular reserve, but congregates at Pelican Narrows, in unceded territory, once a year to receive its annuities.

PORTAGE LA PRAIRIE AGENCY.

There are five reserves in this agency, viz.: Long Plain, Indian Gardens, Swan Lake, Roseau and Roseau Rapids.

The population at the latest annuity payment was 427, as compared with 424 last year.

The Indians of this agency are of the Ojibbewa tribe, with a considerable strain of white blood.

LONG PLAIN BAND.

Reserve.—This reserve is situated on the Assiniboine river, in range 8, townships 9 and 10, west of the first principal meridian, about fifteen miles southwest of Portage la Prairie. The reserve was formerly all heavily timbered, but forest fires at different times have destroyed a considerable area of it. In the valley of the Assiniboine the soil is very productive; on the higher table-lands it is sandy, and not productive except in very favourable seasons. About 140 acres of land is under cultivation.

A branch of the Canadian Northern railway has been completed adjacent to the reserve on the north side, thus giving the band good shipping facilities.

The reserve is valuable on account of its wood; being so close to a good market, ready sale can always be found for this product.

Population.—The population of this band is 131.

Resources and Occupations.—During the spring and summer months the greater part of the male population are engaged as farm labourers in the surrounding districts. Very few of them care to farm on the reserve. During the winter they live

on the reserve, chopping and selling dry wood. They make a very good living all the year round and are quite independent of departmental aid, except a few very aged persons.

They are very improvident, and it matters not how much they make, they spend it as fast as they get is. Repeated efforts have been made to influence them to change their ways, but without avail. They think that as long as they do not trouble the department, they are quite independent of advice. They will have nothing to do with cattle, but are very fond of horses, of which they have a considerable number.

Buildings.—Their dwellings are log shanties made fairly comfortable for winter use. In summer they live mostly in tents.

Religion and Education.—All are pagans ; they will have nothing to do with missionaries or schools. I have to confess that after some seven years' trial I am unable to advance these Indians. I see no future for them; they are utterly depraved, and have no wish or inclination to improve their condition.

INDIAN GARDENS.

This reserve is beautifully situated on the bank of the Assiniboine, and consists of 640 acres, being section 2, township 9, range 9, west of the principal meridian. It is nearly all prairie and well adapted for agricultural purposes. It is the home of Chief Yellow Quill and members of his family. They crop about 150 acres, which looked remarkably well at the time of my inspection, on July 2. This reserve is an auxiliary of the Swan Lake reserve.

SWAN LAKE BAND.

Reserve.—This reserve is situated on the Morris and Brandon branch of the Canadian Northern railway, in township 5, range 11, west of the principal meridian. The railway runs through the reserve, and Indian Springs station and post office are located about the centre. The land is high, rolling prairie, interspersed with poplar and willow bluffs, with extensive hay meadows in the valley of the lake. In every way it is well adapted for mixed farming; the soil is good, with plenty of hay and excellent water.

Population.—The population is 102, including those who reside at Indian Gardens, a decrease of 8 from last year. This decrease is caused by the migration of a number to other reserves.

Progress.—I am pleased to report that this band is making considerable progress. They have improved their dwellings, and a few of them have comfortable houses and outbuildings. This year they have nearly 300 acres under crop, with excellent prospects of an abundant harvest. This band has quite a nice herd of well-bred cattle, and a number of horses. Members of the band, when not engaged at home in farming operations, make considerable as farm labourers in the immediate vicinity. They also derive quite a revenue from the sale of senega-root.

Religion and Education.—A majority of the band are pagans, but are gradually but surely embracing Christianity. This applies more especially to the younger members of the band. Mr. Kemper Garrioch acts as missionary for the Presbyterian Church and also as day-school teacher. Mr. Malcolm Campbell is farm instructor.

Departmental and other Buildings.—The department has a very comfortable log dwelling for the farmer, also stable and granary. A good frame school-house with rooms above for storage. The Presbyterian Missionary Society has built a comfortable house as a residence for the missionary and school teacher.

ROSEAU BAND.

Reserve.—This reserve is situated at the confluence of the Red and Roseau rivers in the famous Red River valley. The soil is a heavy black loam. Wood and hay are abundant, with plenty of open prairie for agricultural purposes.

Vital Statistics.—The population is 194; there were 6 births and 17 deaths (Roseau Rapids reserve included).

Progress.—I cannot report any material progress in this band. With a few exceptions they are a demoralized lot, lazy and indifferent to the future. A few of the younger men are making some progress. My experience with the Indians is that very little can be made of them when surrounded by a community that is considered a little 'tough,' and adjacent to towns and villages. The band put in 125 acres of crop this spring, but owing to the overflow of the Red river, and, continuous rains in June, it was badly damaged. I have not yet received the threshing reports for 1904. They have 40 head of cattle and 26 horses.

Religion and Education.—About a third of the band are Roman Catholics. The rest are pagans. The Roman Catholics have a good church, but no regular missionary. They are visited occasionally by priests from the neighbouring settlements. There is no school on the reserve, and the people do not desire one. The chief and councillors are old style Indians degenerated.

ROSEAU RAPIDS RESERVE.

This reserve contains 2,080 acres, and is situated on the Roseau river about 11 miles from its mouth. This reserve has been enlarged by the purchase, from the capital funds of the band, of 1,280 acres of pasture and hay-land. The old reserve of 800 acres is nearly all grain-land, with plenty of wood in the river valley.

Progress.—This is a more progressive band than the last-mentioned, being surrounded by better farmers. This year they have 107 acres under crop, which promised a beautiful yield at the time of my inspection. They have twenty-nine head of cattle and ten horses. There is plenty of outside labour for all who are able and willing to work at good wages. In fact they derive most of their living in this way, and by digging senega-root.

Religion and Education.—With two or three exceptions they are all pagans, and will not listen to religious instruction. Last year a school-building was erected, and I am pleased to report that it has been well attended and considerable progress made by the pupils.

PORTAGE LA PRAIRIE SIOUX.

This band numbers about 150. They live on a piece of land containing twenty-six acres, purchased by themselves, situated on the Assiniboine river, within the corporation limits of this town. They are industrious and thrifty. Most of them have good houses and gardens. I regret to say that their village was again this year, as in 1902, inundated by the overflow of the river, causing considerable loss and inconvenience to the band.

They make a comfortable living, the men as farm labourers, and the women at laundry work, &c., in the town.

The mission church in this village is well attended. It is under the auspices of the Presbyterian Church. Mr. W. A. Hendry, of the Sioux boarding school, acts as missionary. The boarding school continues to do excellent work under the management of Mr. Hendry.

BIRTLE AGENCY.

G. H. Wheatley is agent, S. M. Dickenson, clerk, and E. H. Yeomans, farmer in charge of Sioux work. The agency office is at the town of Birtle, Man.

This agency consists of nine reserves, namely : Rolling River, Keeseekoowinin's, Gambler's, Waywayseecappo's, Valley River, and the Sioux reserves of Birdtail, Oak River, Oak Lake and Turtle Mountain.

ROLLING RIVER BAND.

Reserve.—This reserve is beautifully situated on the river from which it takes its name, distant about eighteen miles northwest of Minnedosa. The river runs from north to south through the reserve. The land is undulating and in parts is covered with a strong growth of poplar timber.

The soil is a rich black loam, but I should judge that owing to its altitude it would be better adapted for stock-rasing than for grain-growing. It is all right for coarse grains and the harder varieties of vegetables. The crops this year are not very good, the fore part of the season was too dry.

There are a number of small lakes on the reserve, some of them stocked with fish. There are also a number of good hay meadows; the Clanwilliam extension of the Canadian Northern railway runs adjacent to the reserve.

Vital Statistics.—The population at the annuity payments was 97; there were only 2 deaths during the year.

Progress.—As it was my first visit to this band, I cannot say much about its progress. I was much impressed by the superior class of dwellings. This year they have 116 acres under crop, mostly oats and garden truck. They have about seventy head of cattle and sixty horses.

Religion and Education.—Dr. Gilbart is in charge of mission work for the Presbyterian Church. He also attends to their medical requirements. I regret to say that the missionary reports very little progress in his work. Results may be better than he anticipates.

Education is sadly neglected. There is no day school on the reserve, and only one child from the reserve attending the boarding school at Birtle. The band has no chief or council. This may account for the small degree of interest taken in education by the members of the band. My experience is that a good chief and council are a great factor in school matters. The missionary has a comfortable house at the south end of the reserve, and appears to be engrossed in his work.

Health.—The general health of the band is good. They are all well clothed and present a robust appearance.

KEESEEKOOWININ'S OR RIDING MOUNTAIN BAND.

Reserve.—This reserve is situated on the Little Saskatchewan river, in the Riding Mountain district, about twelve miles from Strathclair station, on the M. & N. W. railway. A branch of the Canadian Northern railway has been graded by the reserve and was expected to be in operation this fall.

The soil is first-class and well adapted for mixed farming. There is considerable hay-land, but not sufficient for increased herds of cattle. Additional hay-lands are desirable. There is sufficient wood for the requirements of the Indians.

Vital Statistics.—The population at the last annuity payments was 133; there were 6 births and 7 deaths.

Progress.—I should judge that this band is making considerable progress. The houses as a general thing are good, and the Indians present a thrifty appearance. This year they have 175 acres under crop. They have 168 head of cattle and 60 horses. The band is almost entirely self-supporting.

Religion and Education.—Rev. Mr. Macalister (Presbyterian) is the missionary teacher. I regret that he was absent from home at the time of my visit. I understand that nominally the members of his band are all Christians. Religious services are held in the school-house. The missionary has a very comfortable dwelling on the reserve.

I understand that the day school is fairly well attended, and that considerable progress is being made by the pupils. I am sorry that Mr. Macalister was away. I should have liked to inspect the school. This band sends seven pupils to outside institutions for education.

GAMBLER'S RESERVE.

This reserve is situated on Silver creek, five miles from the village of Binscarth, and contains 820 acres of beautiful farming land. There is only one family resident on the reserve, that of John Tanner. This man is a very progressive farmer and has everything around him that is to be found amongst our best white farmers ; fine crop of eighty-one acres ; twenty-five head of cattle, eight good farm horses, full line of agricultural implements, hogs, poultry, &c. He has comfortable dwelling and outbuildings, and is part owner of a valuable syndicate stallion. It seems an absurdity to class this man as a treaty Indian.

WAYWAYSEECAPPO'S BAND.

Reserve.—This reserve is situated on the Birdtail creek about eighteen miles northeast of Birtle. It is the largest reserve in this agency. It contains 25,000 acres. It has a population of 169. This reserve is particularly well adapted for stock-raising. There is wild hay in plenty, and the grazing on the high land is first-class. It is a rolling prairie, with scattered ponds, small lakes and bluffs of willow and poplar.

Progress.—Farming is carried on in a very small way, and from my own observation I do not think that the band is making very gratifying progress. They have not nearly the number of cattle that they should have, considering their advantages in this respect. Their dwellings are comfortable and the Indians appear satisfied with their present condition. This year they have 72 acres under crop and garden ; 110 cattle and 41 horses.

VALLEY RIVER BAND.

Reserve.—This reserve is situated on the Kamsack branch of the Canadian Northern railway, forty-three miles west of the town of Dauphin. Strevel station is located on the reserve. The Valley river runs through it. The soil in parts is stony and gravelly. There is plenty of good land for agricultural purposes ; fairly well wooded with spruce, poplar and tamarack. Forest fires have destroyed considerable timber. There is not much hay-land.

Vital Statistics.—The population was 75 at the last annuity payments. There were 2 births and 7 deaths during the year.

Progress.—The band appears to be progressive. As yet these Indians have done but little farming. The able-bodied male population make good wages as lumbermen and river-drivers. They also do a great deal of hunting. The houses are good and are kept very clean and neat. A few of them have good gardens of potatoes and other vegetables. This year they have only three acres under cultivation. They have seventy-five head of cattle and thirty-two horses.

Education and Religion.—There is no school on the reserve. Five pupils from this band are sent to boarding schools. In religion these Indians are almost equally divided among Presbyterians, Roman Catholics and pagans, the first slightly predominating. I understand that no regular mission work is done on this reserve.

SIOUX OF BIRTLE AGENCY.

These embrace the Oak River, Oak Lake, Birdtail and Turtle.

The small reserve at Turtle mountain I have not yet visited since it was added to my inspectorate.

The three bands visited are making excellent progress, the thrifty appearance of the Indian, excellent houses and stables, good horses, well-bred cattle, and large stock of up-to-date farm implements, was a revelation to me, so different from the Saulteaux and Cree reserves that I am more familiar with. These Indians may be said to be almost self-sustaining. They do not receive annuity, and get very little aid from the department in other ways. The reserve at Oak River is the banner one, and under the excellent management of Mr. E. H. Yoemans, as farm instructor, is making rapid progress. Birdtail is a close second, and Oak River is not far behind.

All are situated in good agricultural districts, and the Indians vie with their white brothers in their farming operations. Under a little supervision by the department, I am of the opinion that the future of these bands is assured. They have settled down to agricultural pursuits in a manner that almost warrants success. It is on these reserves that the training of industrial and boarding schools is most apparent. Many of the younger generation now at work on the reserves received their idea of thrift and agricultural knowledge at these institutions, besides having been taught a knowledge of English, reading and writing, the possession of which is invaluable to them.

To give an idea of the advanced condition of some of these Indians, I have only to state that I found in several houses copies of weekly newspapers, subscribed for by the occupants. This is surely keeping abreast of the times.

Religion and Education.—On the Oak River reserve the Church of England has a church and dwelling for the missionary. Services are held every Sunday. The young men of the band have a live Young Men's Christian Association. There is an excellent school-house on the reserve, but I understand it was closed a few years ago for lack of attendance. Elkhorn industrial and Birtle boarding school, recruit largely from these reserves. At Birdtail and Oak Lake the Presbyterians have churches with regular services. At Birdtail reserve the Indian women have a branch of the Presbyterian Foreign Missionary Society, and I am informed that they contributed the sum of $60 last year to the Society. The money was raised principally by the sale of beadwork.

Vital Statistics.—The population of the four reserves is about 400, of which more than one-half reside at Oak River.

MANITOWAPAH AGENCY.

The total population of this agency is 1,364; during the year there were 59 births and 32 deaths.

As the physical conditions are so similar in the different reserves of this agency, I shall report on them as a whole, and not individually, as has been done with regard to the other agencies.

There are ten reserves in this agency, viz: Sandy Bay, situated on the west side of Lake Manitoba; Lake Manitoba reserve, on the east side of the lake, 20 miles northeast from Sandy Bay reserve; Ebb and Flow reserve, on the lake of the same name at the northeast corner of Lake Manitoba; Little Saskatchewan reserve on Sandy bay, Lake St. Martin; Lake St. Martin reserve on Lake St. Martin; Crane River reserve at the junction of Crane river with Lake Manitoba; Waterhen reserve, at the south end of Waterhen lake; Pine Creek reserve, on the west side of Lake Winnipegosis; and Shoal River reserve, at the mouth of Shoal river, where it empties into Dawson bay, Lake Winnipegosis.

The Indians of this agency are all Saulteaux, except a few Crees at Shoal River. They may all be classified as Lake Indians, making the principal part of their living by fishing and hunting and as labourers at the gypsum mines.

There is very little agricultural land on any of the reserves. Wild hay is plentiful, and each band has quite a large herd of cattle, in which they are taking more and more interest. They also have excellent gardens of potatoes and other vegetables.

During the past year Lake Manitoba and Lake Winnipegosis and their tributary waters have lowered considerably, much to the benefit of the reserves. For several years past these lakes have been so high that most of these reserves have been partly inundated, greatly to the detriment and discomfort of the Indians.

Progress.—I cannot report progress very marked, but they are certainly advancing. They are becoming more self-reliant and independent year by year; their houses and outbuildings are better, they are better clothed and fed and in every year more advanced in the arts of civilization. For Indians who will not abandon the old modes of life to become agriculturists the agency is ideal. They need never go hungry if they will take the trouble to set their nets.

Religion and Education.—The Indians of this agency are mostly christianized. The denominations represented are the Church of England, Roman Catholic and Baptist. They are represented as follows: Roman Catholics, 660; Anglicans, 500; Baptists, 63; pagans, 141. The Roman Catholics have churches at Sandy Bay, Lake Manitoba, Waterhen River and Pine Creek reserves. The Anglicans have churches at Fairford and Little Saskatchewan, and Shoal River reserves. The Baptists have missions at Lower Fairford and Lake St. Martin. On the other reserves the services are held in the school-houses.

There are schools in operation on all the reserves but Crane River. It was found necessary to close this school through lack of attendance. All are day schools except Pine Creek, which has a boarding school. A boarding school with accommodation for one hundred pupils is now being erected on Sandy Bay reserve, and it is expected to be opened this fall. Of the ten schools now open, five are Roman Catholic and five are Protestant.

PAS AGENCY.

I have just returned from my annual trip of inspection to the reserves and bands of this agency.

Reserves.—A marked similarity exists between all the reserves of the agency. The agency consists of seven reserves, viz.: Grand Rapids, Chemawawin, Moose Lake, the Pas, Shoal Lake, Red Earth, and Cumberland. In addition to these, payments are made at Pelican Narrows to a band of Indians in unceded territory in the district of Athabasca. All the reserves of the agency are situated on the lower Saskatchewan river, or waters tributary thereto. This section of the district of Saskatchewan contains little or no agricultural lands, but is ideal for Indians who have no inclination to change their mode of life by assuming the white man's ways. Fish, water-fowl, and fur-bearing animals are still abundant. The Indian leads a careless indolent life, and it requires but little exertion on his part to provide for the simple requirements of his family. The life he leads is anything but conducive to thrift, and the development of those qualities which go to build up a vigorous, independent manhood. Transportation is all by water during the open season, and by dog train in the winter. Some of the bands have a few cattle. I regret to say that these herds have become very much depleted during the last few years, owing to the abnormally high water of the Saskatchewan, which overflowed the whole country, flooding the hay swamps to such a degree that it was impossible to provide sufficient hay to keep the cattle alive. I am pleased to be able to say that this year the waters have receded to their normal level, and it is hoped that they will not rise sufficiently to menace the herds of the people for a good many years to come.

The loss of cattle is not of so much consequence in this agency as it is in some others, for the reason that they are too far from market to dispose of them, and as a food-supply to the owners, of little value in a country where moose, bear and fish are so plentiful. They do not make butter and only a few of them use milk. As a matter of fact, they would not raise cattle at all if it were not their desire to please the department, for whose desires and wishes they appear to have the most profound respect.

Progress.—As in the former agency, the Indians are making gradual progress. They are improving their dwellings year by year, and furnishing them with more comforts of life. It should be remembered that they do not live on the reserves all the time; in fact, not more than half the time. They go away long distances, taking their families with them, on hunting trips, and are sometimes away months at a time.

The Pas band is an example to the other bands of the agency.

This reserve is the agency headquarters, and also the centre of mission work in the district. It is the largest band in the agency, and the paragon to which the other bands look for an example.

This year, at the urgent request of the Pas band, the department purchased for them a saw mill, the Indians agreeing to pay a third of the cost, which amounted to $600. They were to pay one-sixth this year, and the balance next year by an equal assessment on their annuity money. This assessment amounted to 14 per cent of their annuity, and I am pleased to report that it was paid without one dissenting voice. It is expected that the mill will be of great benefit to them, and the surrounding bands. It will be in operation next spring. Heretofore they have had to whipsaw all the lumber they used.

Religion and Education.—The bands of this agency are nominally all Christians of the Church of England, except the Pelican Narrows band, which is about two-thirds Roman Catholic, and one-third Anglican. They are a law-abiding, moral people. Serious crime is almost unknown. Previously to last year there had been little trouble with them through the use of liquor. I am informed that during last winter the fishermen operating on Cedar and Moose lakes took in liquor at different times, and a few of the Indians were supplied with it. The agent made an investigation, but could not get sufficient evidence to make a conviction. Again at Cumberland, there is a large half-breed population engaged as boatmen during the summer months. The route is from Prince Albert down to Cumberland and the Pas. These men sometimes bring down liquor, and give, or sell it to the Indians. But in both cases I found the reports exaggerated. However, it might be well to station a small detachment of police at Cedar Lake and Moose Lake reserves during the winter months to protect the Indians. The winter fishing on these lakes has become quite extensive, and the men engaged in the work are naturally inclined to the use of liquor. If unchecked, and the Indians once acquire the habit or appetite, it is hard to say what the consequences may be. The Church Missionary Society maintains ordained missionaries at Cumberland, the Pas, Chemawawin, and Grand Rapids, and lay readers at the other three reserves. They have churches at all the reserves, and hold services, which are well attended. Each reserve has its day school; of the utility of these in most cases, I am somewhat doubtful. If the idea is to teach the children the English language, they are a decided failure. It is Cree, first, last and always, except a little parrot English in the class-room, Cree is the language of the country. An exception to this may be taken at the Pas reserve, where I do think they understand a little English, but it is almost impossible to get any of them to give expression to it. Mr. R. A. McDougall, the teacher of this school, is indefatigable in his efforts to promote the use of English outside the school. If the missionaries would exercise the same zeal in their work, it would be easier for the teachers. Instead of this, they consider it their duty to master the Cree and to use it on all possible occasions when talking to Indians. This, I consider is a great mistake. The Indians will never become truly enlightened, loyal subjects, until they can understand the language of the country. They look on all white men with suspicion and distrust, and cannot believe the most benevolent action is disinterested. As for gratitude or thankfulness for a favour received from the department, or other sources, it is out of the question; everything is accepted as a matter of course, and they think much more is coming to them.

Vital Statistics.—The total population at the last annuity payment, 1903, was 1,441; and there had been 66 births and 49 deaths.

I regret that I have not yet secured the above statistics for 1904, but the proportions will be about the same.

The past year has been uneventful in this inspectorate. The general health in all agencies has been good. There have been no serious cases of crime. In Portage la Prairie and Birtle agencies the use of intoxicants has caused considerable trouble. I see no remedy for this while the liquor traffic continues in the country. If liquor is to be bought, and the Indian wants it, he will find a way to get it in spite of the most careful watching, fines and imprisonment notwithstanding. I see no way of remedying this evil, all we can do is to try to minimize it.

I have one very gratifying matter to report, that is, the marked decrease of tubercular diseases among the Indians, more particularly in the Manitowapah agency, and in a lesser degree in the Pas agency.

Last year it was apparent, this year it is striking. I can only account for this desirable condition by the fact that the Indians, owing to the prosperous times, have been living much better the last few years than formerly, and under better sanitary conditions, a diet composed of more vegetables; and to less intermarriage.

Materially all the Indians of this inspectorate are prosperous. They are almost self-sustaining. The only assistance in the shape of food or clothing, is to a few very aged and sick.

A few implements are also supplied, but the quantity is being reduced year by year.

During the past three months, I have visited every reserve and band of annuitants in the inspectorate, and I am glad to report the work accomplished.

I have, &c.,

S. R. MARLATT,

Inspector of Indian Agencies.

MANITOBA SUPERINTENDENCY,
LAKE WINNIPEG AND RAT PORTAGE INSPECTORATE,
STONEWALL, MAN., September 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—In submitting my second annual report of inspection, I have the honour to be again able to congratulate the department upon the great prosperity and feeling of contentment which prevail among the Indians of the Clandeboye and Norway House agencies.

The demand for labour by the various fish companies still keeps up, and all the Indians wanting work have no trouble in getting employment, either at day work or work at the fishing themselves, and sell to the companies at so much per fish. Fish of all kinds have been very plentiful this season, and the Indians have been making large wages and will continue to do so while the season lasts.

The winter demand for Indian labour during the past season was good and a very large number of the younger men got good wages from all the different lumber companies that are operating around Lake Winnipeg. This work started last year in November and lasted till April. A large number of Indians are employed in chopping cord-wood, one firm on Snake Island employs about twenty the year round in getting out wood to supply the steamboat lines. All the hunters of the various reserves also

report a fair catch of fur, during the past winter, though the prices were lower than usual.

As requested by the department, I made the annuity payments in the Norway House agency, assisted by the new agent, the Rev. Neil Gilmour, and in doing so came into contact again with all the Indians of the agency, and in general am able to report that all the Indians are well dressed in civilized attire, and evidently have been well fed during the past year judging by their appearance, also there were no complaints as to shortage of food. I held a council or band meeting on all the reserves, and found that only in some minor matters were there any complaints, the one general complaint being the taking away of the provisions they received at treaty time for about twenty years and which they say were promised them should continue as long as the sun shines and the water runs.

NORWAY HOUSE AGENCY.

This agency is partly in the province of Manitoba and partly in the district of Keewatin. It consists of eleven reserves, of which Black River, Hollowwater River, Bloodvein River, Fisher River, Jackhead River, Berens River and Little Grand Rapids, are in the province of Manitoba, and, with the exception of the last named, at or near the shores of Lake Winnipeg; Little Grand Rapids reserve is situated on the Berens river, about 120 miles east of the mouth. Pekangekum, Poplar River, Norway House, and Cross Lake reserves are in the district of Keewatin. Poplar River reserve is situated on Lake Winnipeg. Norway House and Cross Lake reserves are situated on the Nelson river, the first named about twenty miles from its rise and Cross Lake, about eighty miles. Pekangekum reserve is situated about two hundred miles inland from the mouth of the Berens river, and is a most difficult reserve to get at for the annuity payment. The area of the named reserves is about 58,000 acres, and is a very poor district for farming with the exception of the Fisher River reserve, which is on Fisher bay and has a lot of excellent land on the reserve. Notwithstanding the poor character of all the other reserves, good land can be found on all of them more than sufficient to furnish good gardens to each of the Indian families residing thereon.

BLACK RIVER BAND.

Reserve.—The reserve belonging to this band is on the east shore of the lake, where the Black river empties into the lake. There is a great deal of swamp and rock, but all over can be found patches of fairly good land which are or can be used for gardens; as a rule, where the bush is cleared off the land is good. There is a considerable amount of good timber (spruce) on this reserve which can be utilized for lumber. The area of this reserve is about 2,000 acres.

Tribe.—The Indians of this band are nearly all Ojibbewas, their language is also the same as in the adjoining Clandeboye agency.

Vital Statistics.—The population of this band at last treaty payment was 64, made up as follows : 15 men, 19 women, 15 boys, and 15 girls. There were 2 deaths (1 woman and 1 boy) and 5 births (3 boys and 2 girls).

Health and Sanitation.—The health on this reserve has been good during the year, and the doctor reports the band as being healthy and only suffering from minor ailments.

Resources and Occupations.—A number of Indians of this band worked for the fishing companies, principally in catching fish, for which they receive a price fixed by the companies, which send a tug around to collect the fish. The men work in the bush during the winter at the lumber camps, and make quite a lot of money in this way. This cannot be called an employment that is likely to be permanent, as the timber is being cut so fast that the work will be done in a very few years in this particular

locality. Very little gardening is done on this reserve, a few potatoes, not nearly enough for the band consumption. They have a few head of cattle and look after them well. They catch some game, which helps to keep the pot boiling.

Buildings.—Their houses are made of spruce and poplar logs, sometimes hewed inside and out; they are chinked and plastered on the outside with mud and an occasional one with lime plaster; they are also as a rule plastered inside between the logs. With a good stove these houses are very comfortable. On this reserve there is very little provision for wintering cattle, the stables being small anl poor. The school-building is good and the teacher reports it as being very comfortable in the winter.

Stock.—They keep very few cattle on this reserve, pasture and hay being scarce; what they have, the chief informed me, are in good order. The Indians on this reserve are within easy reach of cattle; if they would only make an effort, save their money and buy some cows, they would soon increase their stock.

Farm Implements.—They have as many implements as they require to work the very small area of land under cultivation.

Education.—There is a day school on the reserve, taught by George Slater, an Indian who was educated at St. John's College, Winnipeg, and is doing fairly well. The attendance during the summer months is very poor, but increases well after winter sets in.

Religion.—The members of this band are nearly all Anglicans, the few outside that church being pagans. There is a church on the reserve, at which there is a good attendance at times.

Characteristics and Progress.—The Indians on this reserve are an honest and fairly moral people who try to do by their neighbours as they would be done by. They are not making much progress, but seem satisfied in holding their own.

Temperance and Morality.—The members of this band do not get a great quantity of liquor, though an occasional bottle reaches the reserve; though knowing the evils resulting from the use of whisky, they find it hard to resist taking a drink if it is afforded to them. Their morals among themselves are as good as in the average white settlement.

General Remarks.—At the council meeting, they had no new complaints to make, having had peace and quietness during the year. They were much pleased to see the mounted police, which they thought showed the interest the government is taking in the Indians.

HOLLOWWATER RIVER BAND.

Reserve.—This reserve is situated on the Wanipigow or Hollowwater river, which flows into Lake Winnipeg on the east shore not far from Black island. As usual on the east shore of this lake, it is mostly granite rock, swamp, and bush. There is a lot of scrub timber growing on the rocky parts in the depressions. Where not under water, there is as a rule a good growth of white poplar and birch timber, and where the white poplar is found the land is good for gardens when cleared and cultivated. The area of the reserve is 3,316 acres.

Tribe.—The Indians of this band are a branch of the Ojibbewas, and speak the same language.

Vital Statistics.—The population of this band at the last treaty payment was 103, consisting of : 23 men, 28 women, 30 boys and 22 girls. There were 4 deaths (4 boys) and 7 births (3 boys and 4 girls) during the year.

Health and Sanitation.—The general health of the band is good. Of the four deaths during the year, three were infants who had never received treaty money. Sanitation is good, the people for six months of the year live in tents and in consequence get plenty of fresh air.

Resources and Occupations.—Fishing in the summer and hunting in the fall, winter and spring take up most of their time, and as well quite a number of the

younger men work in the logging camps during the winter months. They are valued by the lumber companies and are in great demand. Only a few of the band grow any potatoes. One Indian, in answer to the inquiry why he did not grow potatoes, said that he and the family were nearly always away during the growing season and he could buy potatoes cheaper than he could raise them. Fish have been plentiful during the past season and all that the Indians catch can be disposed of by them at good prices. They get flour and other provisions at a reasonable rate from the fish and lumber companies.

Buildings.—The houses are in good condition, being nearly all built of logs, and a number of them have shingled roofs and board floors. The school-house is a very good comfortable building and is a credit to the reserve. The stables and out-buildings are of logs and of a very primitive appearance, only a few of the Indians having any stock.

Stock.—There are a few cows on the reserve and the Indians intend to get enough hay to keep them through the winter.

Farm Implements.—They have all the implements they want and they are kept out of doors in the weather. I have pointed out to them the benefit of putting their tools under cover.

Education.—They have a fairly good school on the reserve and the teacher, Mr. Sinclair, says the only difficulty is the irregular attendance. Mr. Sinclair is not in good health, he is getting old and is thinking of quitting the work, which will be quite a loss to the band.

Religion.—All the people of this band are Anglicans, and Mr. Sinclair, the school teacher, holds the Sunday services, and acts as missionary for that church.

Characteristics and Progress.—These people are making slow but sure progress, every year one can see some little improvement, more particularly in the appearance of the younger people. They are also improving in thir methods of housekeeping, most of the houses being neat and tidy. They are a people easily satisfied, and make little or no complaint when provisions have been plentiful as they have been during the past year.

Temperance and Morality.—This band impressed me very much, as being a sober and moral people. Having a resident missionary of the Church of England, has helped a good deal to civilize this band of Indians. Mr. Sinclair, the missionary teacher, reports a good attendance at all the religious services.

BLOODVEIN RIVER BAND.

Reserve.—This reserve is situated on the Bloodvein river, just northeast of the narrows of Lake Winnipeg, and is very low and swampy where the treaty payments are made, nothing but rock and water in sight. Accompanied by the new agent, Mr. Gilmour, and Councillor Fisher, I made a trip up the Bloodvein river, to take a look over the reserve, and we found that as one gets away from the mouth of the river, the rocks disappear and good land and bush take their place. The Indians are also trying to improve the looks of the reserve, by making some clearings on the bank of the river. The area of the reserve is 3,369 acres.

Tribe.—The Indians are of the same tribe as the Hollowwater River and Jack-head River bands, and at one time there was a chief for three reserves, but at the present time they have only a councillor for each of the bands.

Vital Statistics.—The population of this band at the last treaty payment was 57, made up as follows : 10 men, 23 women, 15 boys and 9 girls. There were 3 deaths (2 boys and 1 girl) and 2 births (both girls) during the year.

Health and Sanitation.—The health of this band was very good during the year, very little sickness was reported to the doctor.

Resources and Occupations.—Hunting and fishing are the main sources of revenue. There is a good deal of fur still to be had by the hunter in the country east

of Lake Winnipeg, and tributary to this reserve, and full advantage is taken of it by the Indians. Some of the men also work for the fish companies during the summer months, and in the winter a few go into the camps where the logging is done, as a rule taking their families with them. It seems almost impossible to get these people to raise vegetables ; on making inquiry as to the reason, they say it would not pay them to stay away from the work they can get for the sake of raising a few potatoes. They very often plant potatoes, but do not stay at home to attend to them, and in consequence their small garden plots are all grown up in weeds. They have no stock whatever on this reserve. Two or three new houses are being built, which is furnishing some little occupation to members of the band.

Buildings.—All the houses on this reserve are built of logs, with thatched roofs, and can be made very comfortable in the winter. The school-building is a very good one, and the teacher and his family also live in it, having their cook-stove in the school-room.

Stock.—No cattle or horses are owned by the Indians of this band ; they express a desire to have some, but so far have not been able to secure any, owing to the expense of getting them to the reserve.

Farm Implements.—They have all the implements necessary for the small quantity of land they have under cultivation. They consist of the small tools such as grub-hoes, rakes, spades, garden-hoes, &c.

Education.—There is a school now on the reserve taught by an educated Indian named Jerry Rundle ; he is from the Fisher River band, and is doing fairly well considering the irregular attendance. This teacher was sent by the Methodist Church of Canada, and conducts services for that denomination.

Religion.—The greater number of this band are very indifferent about the Christian religion, but now that they have a native Methodist missionary living among them, it is expected that they will quit their pagan habits, and most of them will join that church. Mr. Rundle reported that quite an interest was taken in all the services held by him.

Characteristics and Progress.—The members of this band are making very little progress, they are about holding their own, and appear perfectly satisfied with that. They are an honest, law-abiding people, and from all the indications wish to provide well for their families.

Temperance and Morality.—There are a number of the Indians of this band who have no idea of morality, from the civilized standpoint, and when they are tempted, cannot say no, and the consequence is, living as near as they do to a floating white population, there will be more or less immorality for some time yet.

FISHER RIVER BAND.

Reserve.— This reserve is located on the Fisher river, which empties into Fisher bay, a large bay on the west shore of Lake Winnipeg, and just north of what is known as the narrows of that lake. The reserve extends from near the bay inland for several miles on both sides of the river, and is a very good location for mixed farming. The land will grow any kind of grain or vegetable that can be grown in the province of Manitoba ; the only drawback being that when the water is high in the lake, it floods their hay-land, which lies at the lower part of the reserve, near the lake. In 1879, on July 17, I was on this reserve and saw a small field of wheat fully headed out, and four feet high ; we also had potatoes from Chief Rundle's garden which were as large as a cricket ball. The area of the reserve is about 9,000 acres.

Tribe.—All the Indians of this band are Crees, they originally came to this reserve from the territory surrounding Norway House, and are related to that band.

Vital Statistics.—The population of the band at the last treaty payment was 388, consisting of 94 men, 105 women, 97 boys, and 92 girls; there were 21 deaths (3 men, 3 women, 9 boys, and 6 girls) and 23 births (10 boys and 13 girls) during the year.

Health and Sanitation.—The health of this band is fairly good, they lost a number during the year, but still there was no epidemic of any sort, just the ordinary ail-

ments that afflict all sorts and conditions of people. The houses are kept very neat and clean, and show the effect of the education that the young people are getting, the houses are as well ventilated as the average house in the newer white settlements.

Resources and Occupations.—Nearly all the younger members of this band are working out with the numerous fish and lumber companies that are operating on and around this lake. They are earning a large amount of money, which they are spending for clothes and provisions for themselves and families. There is no scarcity of work, and as long as the fish and lumber lasts, this band will have no trouble in making a living. Till that time arrives, there will be great difficulty in getting them to take very much interest in their gardens on in their stock. There are a few exceptions on the reserve who are making a living by farming, and these people are doing well; they have a lot of good stock and comfortable barns to house them in. Mosquitoes and a fly called the 'bulldog,' are very bad here during the summer months, and will be till the members of the band get more land cleared up. There are a number of very good hunters, who make a good deal of money out of the fur they catch in the fall and winter months.

Buildings.—Nearly every family on this reserve has a good log house, and both sides of the river for several miles are thickly covered with houses and stables, which present a very nice appearance, as most of them are whitewashed on the logs.

Stock.—In the aggregate they have a large number of horses and cattle, and now the complaint is that it will not be long before they will have trouble in securing enough hay to feed them. They have made a request of the government for some hay-ground which adjoins their reserve to the west.

Implements.—They have ploughs, harrows, and all sorts of smaller garden tools in great plenty, and as well some mowers and hay-rakes. In nearly every instance the implements while not in use are out in the weather, notwithstanding it has been pointed out to them again and again, the damage that accrues to all such tools.

Education.—There is a good school on this reserve, and it is attended by all the children on the reserve at some time or other during the year; the trouble is the irregular attendance, the parents having to go away owing to their engagements working out, take the family with them, and the children are only sent to school when the parents are at home, and not always then. The holidays being on at the time of my visit, and the teacher away, I had no chance this year to see whether there was any improvement over the last visit.

Religion.—Nearly all the members of the band belong to the Methodist Church. There is a large church and parsonage, centrally situated with a fine site on the banks of the river, near the first rapids, the point where navigation by lake boats ceases. This mission is in charge of the Rev. E. R. Steinhauer, who has been stationed here by the Methodist Church of Canada. He speaks the Indian language fluently, and has from all appearances a great influence for good on this reserve. Mr. Steinhauer also has charge of the medicines, and does the dispensing. Dr. Anderson, (acting for Dr. Jamieson) left him a supply of medicines sufficient, under ordinary circumstances, to last till next treaty payment.

Characteristics and Progress.—The Indians of this band are of a good stamp, religious and law-abiding ; they have some weaknesses, but will average high for an Indian population ; they are also an industrious and fairly hard-working people, all of them seem to have work to do. They are making a good deal of progress in a good many directions, building new houses, and getting more land under cultivation, though they do not pay that attention to their gardens that should be given. This is one of the reserves where a competent farm instructor could do a great work, if the right man could be obtained.

Temperance and Morality.—Considering their many opportunities to get liquor, these people are of a very temperate character ; there are a great many industries where white men are employed in their immediate vicinity, and in consequence more or less liquor gets into their reserve. Several of the Indians have told me that they

are temperance men, and on all occasions where it is offered to them refuse to touch or taste.

With regard to morals, I am able to report that the members of the band generally are moral with some few exceptions; the Indians feel very bad when any lapses are reported at the council meetings, and wish the guilty persons punished.

General Remarks.—There is a resident trader on the reserve, who sells goods to the Indians at a reasonable price. He reports that the Indians are very good pay when he lets them have any goods on credit. Since my previous visit, the late chief, David Rundle, has died and all the responsibility of looking after the affairs of the band is resting upon the shoulders of Henry Coustatak, the only councillor belonging to this band.

JACKHEAD BAND.

Reserve.—The reserve for this band is situated on a small river of the same name, about forty miles north of Fisher river on the west side of Lake Winnipeg. A good deal of the land is low, but there is plenty of high land to give each head of a family enough for a large garden, and also, if he so desires, a good big field of grain; all it requires is to be cleared of the bush that grows thereon. There is a great plenty of wood suitable for building purposes, and also for fire-wood.

Tribe.—This is a portion of the band living at Hollowwater River and Bloodvein, and speak the same language (Saulteaux). This band has no chief.

Vital Statistics.—The population at the last treaty payment consisted of 16 men, 21 women, 20 boys and 8 girls, making a total of 65. There were 4 deaths (3 boys and 1 girl), and 2 births (both boys) during the year.

Health and Sanitation.—The health of the band in the course of the past year has been very good, just the ordinary ailments, colds, rheumatism, &c. The question of sanitation is not considered very important, as for seven or eight months the Indians live in tents, and have for that time at least plenty of fresh air, and when they do live in their houses, as a usual thing there is good ventilation through the cracks left open.

Resources and Occupations.—The Indians of this band live principally by hunting and fishing, there is a large section of unoccupied government land situated adjacent to the reserve to the west, and it is one of the best hunting regions left in the province, in the woods can be found all sorts of game, both large and small; it is a well watered country, so every species of fur can be caught. A number of families from this band are at the present time cutting cord-wood on an island (Snake) about thirty miles southeast of the reserve; they are cutting at so much the cord, for a firm that contracts to supply wood to the different steamboat companies which navigate Lake Winnipeg. The man in charge at the island informs me that they give work for the year round to a large number of the Indians who live on the adjacent reserves.

Buildings.—There are a number of very comfortable log houses on this reserve, they are neatly built and are quite warm in the winter-time. Their school-building is log, plastered inside and out with mud. I was there the day after a heavy rain, and the building was in a very bad condition, floors all over mud, which had been washed out of the cracks. I advised them to try and get some lime and make a decent job of the school-building.

Stock.—They keep a few cattle, but do not depend much upon this branch of industry; hay is scarce and hard to get, which prevents their making much of an effort to increase their herd. What cattle they have are in fine order, in fact rolling fat.

Farm Implements.—The members of this band have very few implements, and do not require many, except of the smaller kind. They claim that a plough is coming to them from one of the Fisher River band, and the new agent has promised to look into the matter.

Education.—There is a teacher now on the reserve, which is satisfactory to the councillor and band. I went over to the school with the teacher, Louis Larond, and looked over the register. There are enough children on the reserve to make a good school, but owing to the nomadic habits of the people, the attendance is poor. We arrived at this reserve on Friday evening and left on Sunday morning, so I had no opportunity to examine the children; the teacher reports that those who attend regularly are doing well.

Religion.—The school teacher, who is a student from St. John's College, holds an Anglican service every Sunday, and reports some interest; but as at least half of the people are pagan, the attendance is small.

Characteristics and Progress.—The Indians of this band are an intelligent and fairly bright people, who think they have a good reserve, and would welcome an addition to their numbers, if it could be arranged by the department. They are not making very much progress at present, but are just about holding their own, they are making a good living, and have plenty of provisions, and are well clothed.

Temperance and Morality.—Nothing much can be said against their temperance, very little liquor gets to this reserve in the summer-time, and in the winter an odd bottle gets in because the reserve is on the line of travel for the men who are freighting fish; but the Indians as a rule are not looking for liquor, and do not get very much. Their morals are fair, and no complaints were made to me by any one at this visit.

BERENS RIVER BAND.

Reserve.—This reserve is situated on the Berens river, near where it empties into Lake Winnipeg. It is a very rocky and bold-looking country on the banks of the river, but half a mile back from the river the land gets low and swampy, and nearly all the country is covered with a heavy growth of small timber, poplar, spruce, birch and tamarack. As a rule where one finds the poplar bush, the land is good, and when it is cleared off it makes as good a garden plot as could be desired. The area of the reserve is 7,400 acres.

Tribe.—The Indians of this band are of the Ojibbewa tribe, and speak the Saulteaux language.

Vital Statistics.—The population of this band at last treaty payment was 289, made up as follows : 59 men, 64 women, 97 boys and 69 girls. There were 14 deaths (1 man, 1 woman, 100 boys and 2 girls), and 7 births (5 boys and 2 girls), during the year.

Health and Sanitation.—The health of the band has been fairly good throughout the year, of the fourteen deaths reported, seven were from drowning, six children and one man, who were drowned by the upsetting of a sail-boat in Lake Winnipeg. They were accompanied by the Rev. J. McLachlan, and the children were on the way to the Brandon industrial school. The chief and band feel very bad over this affliction. The houses on the reserve are very good, and a credit to the owners, who in almost all cases are the builders, they have doors and windows and are well ventilated through chimneys. The chief, Jacob Berens, who is an old and reliable man, tells me that he has impressed on all, the desirability of keeping their houses neat and clean.

Resources and Occupations.—The Indians of this band are doing very little in the way of cultivating the ground, their other occupations seem to take them away from home at the season of the year when they should be at home looking after the garden plot. The fisheries are responsible to a very large extent for this neglect of their gardens ; one Indian told me that it did not pay him to stay at home and bother with a garden, as he could make so much more money in other ways, and he could buy his potatoes in the fall. The chief informs me that as soon as the treaty payment is over, his band scatter in every direction, some of them going to work for the different fish companies, some go inland hunting, not for fur, but simply for game that they eat,

they can get plenty of fish anywhere in the rivers that abound in this country. When I was coming back after paying the Little Grand Rapids band, I met five families of the Berens River band about fifty miles east of their reserve ; they were going out to camp for a couple of months, where game could be found easily. There is a Hudson's Bay Company post at the reserve, where the Indians do most of their trading ; but Mr. Disbrowe, the officer in charge, tells me that the old system of giving credit at this point has been altogether done away with, the Indians not requiring it now ; previously to the treaty payments some of the Indians get a little credit, but it is always paid out of their annuity money.

Buildings.—The houses are extra good on this reserve, the members of the band seem to take a great pride in their houses ; when we were going up the river in canoes, the men in our party were telling us who owned the different houses, and when they came to their own, they would say 'That is my house.' Nearly all their buildings are neat and clean-looking. There is a school-building on this reserve newly built just by the old log school. The old building is used by the band for storing their indigent supplies, school biscuits, &c. The new building is well suited for the purpose of teaching, being warm and well lighted, and in a good location on a high bank of the river ; it has a fine belt of timber on the north, which is a great shelter in the winter-time. The Methodist Church of Canada has a good church and parsonage at this point, with a resident minister.

Stock.—They have a few head of stock on the reserve, but on account of the difficulty of getting hay, this reserve will never be able to depend much on that branch of industry, a few cows will be kept for milk, but outside of this, very little can be done till some of the swamps on the back parts of the reserve are cleared up, and made into hay-grounds.

Farm Implements.—They have all the implements that they require for the small gardens cultivated.

Education.—They have a very good school, and a competent teacher. She was away at treaty time, the holidays being on, so in consequence I was not able to examine the school. Later when I passed through on my way back from Little Grand Rapids, I saw the teacher, Miss Eliza Postell, who holds a third-class certificate from Ontario. She informed me that she had twenty-five children on the roll, with an average attendance of ten. As on all the other reserves, the irregular attendance is what makes progress poor.

Religion.—More than two-thirds of the members of this band belong to the Methodist Church, the rest being Roman Catholics and pagans. The Methodists have in in the past done a great work at this point, and are doing fairly well at the present time. The Indians of this band with whom I have come in contact, through having them in my employ as canoemen, show the effects of their early religious training, and put to shame a great many of our, so-called, Christian people. Every night before going to their beds, they hold a short service, and have prayer. They appear to think that this is the proper thing to do and have no hesitancy in doing it. They felt very bad over the loss of their late minister, the Rev. James McLachlan, who was drowned in Lake Winnipeg last fall.

Characteristics and Progress.—The members of this band are making progress, slow it may be, but sure; quite a number of them speak good English, they dress well and keep their children neat and clean, they are obedient to those in authority, attentive to their religious duties, and anxious to pay their debts.

Temperance and Morality.—The morals of the band are fairly good; there are a few women of bad character who cause quite a lot of trouble on the reserve. The chief and councillors have a lot of difficulty in keeping their young people from being contaminated. There is some drinking on the outer edge of the reserve, where the fish companies have their headquarters, but very little liquor gets on the reserve, and they can be called a very temperate and sober people. The chief, Jacob Berens, is very anxious that all kinds of intoxicants should be kept away from the reserve, and was de-

lighted to hear that a member of the North West Mounted Police would in all probability be stationed somewhere in the vicinity of the Berens and Poplar rivers.

POPLAR RIVER BAND.

Reserve.—The reserve for this band is situated in the district of Keewatin, on the east shore of Lake Winnipeg, at the mouth of the Poplar river, and about forty-five miles north of Berens river. There is a great deal of rocky country on this reserve, but there is also a lot of good land, pockets between the rocks, where the Indians can get plenty of good land suitable for gardens. There is also a fine lot of wood on the good land, and it will be a long time before there is any shortage of fire-wood among this band. The area of the reserve is 3,800 acres.

Tribe.—The Indians of this band are of kin with the Berens River band, Ojibbewas, and speak the same tongue.

Vital Statistics.—The population at treaty payment was 152, consisting of 35 men, 39 women, 43 boys and 35 girls. There were 4 deaths (2 women and 2 boys) and 5 births (2 boys and 3 girls) during the year.

Health and Sanitation.—The health of the band has been fair for the twelve months preceding the annual payment.

Resources and Occupations.—The members of the band have fairly good gardens, but do not depend much upon them ; if they manage to raise a few potatoes, they think their duty in that line is done. They have lots of work in the summer-time fishing for their own consumption and for various fish companies that operate in their vicinity. In the winter a number of the older men do a lot of hunting and get a considerable amount of fur, the younger men going into the logging camps at good wages.

Buildings.—There is a large number of new houses completed during the year, and they present a very nice appearance; they are all log and a number of them have good floors and shingle roofs. There are few stables, as stock is not kept to any extent and no dependence is placed on that branch of industry. There is a good school-house on the reserve ; it is neat and comfortable.

Stock.—Only four or five animals are kept, hay is scarce and hard to get, and in consequence there is not much encouragement for the Indians to spend their money in buying cattle, and as long as other work remains open, lack of feed will remain a great obstacle to this branch of industry.

Farm Implements.—They do not need many implements, and what they have are principally for garden use.

Education.—They have a good school with a capable teacher, James F. Blackford. Of 40 children in the vicinity of the school he has 36 (23 boys and 13 girls) on the register, and for the three months ended June 30, 1904, he had an average attendance of 13.

Religion.—Nearly all the Indians of this band are Methodists; there are a few pagans, but as reported to me, they are getting less every year. Mr. Blackford holds Sunday services, and he reports a fair attendance. The Methodist minister at Berens River has charge of and visits this reserve.

Characteristics and Progress.—This band is making good progress in a good many ways. Situated as these Indians are, they make a good lot of money and they are spending it in bettering their houses and improving their ways of living. They are of a quiet and honest disposition, and, if treated right, do not desire any special favours.

Temperance and Morality.—I am informed that owing to the proximity of a fishing station to this reserve (Black River), the morals of the younger women are not as good as they should be. The band does not get much intoxicating drink, and will get less if the R.N.W.M. Police are stationed on the lake. Though they will all take liquor if they can get it, they know the evils, and desire that the traffic be stopped, and then they would be kept out of temptation.

NORWAY HOUSE BAND.

Reserve.—This reserve is in the district of Keewatin. It is on the east branch of the Nelson river, about twenty-four miles from its source and also partly on Little Playgreen lake. There is plenty of rock and water, but also plenty of good land in pockets, not large, but having a good depth of soil. The finest garden seen by me on the trip was at the Hudson's Bay post at Norway House, which adjoins this reserve. They had, in perfection, every vegetable usually grown in Manitoba. The area of this reserve is 10,840 acres.

Tribe.—The members of this band are principally Swampy Crees, and speak the same language as the Fisher River band. There is a great deal of white blood in this band, some of the Indians taking treaty being almost pure white in appearance.

Vital Statistics.—The population at the last treaty payment was 525, consisting of 117 men, 154 women, 130 boys, and 124 girls. There were 12 births (7 boys and 5 girls) and 19 deaths (1 man, 11 boys and 7 girls) since my last visit, during the 1903 treaty payment.

Health and Sanitation.—The health of this band has been fairly good, nothing to cause remark on the part of the chief and councillor, though the band decreased seven during the year. There is nothing wrong with their houses. They are similar to the log houses used by the homesteaders settling in Manitoba, and as a rule lots of fresh air is admitted both winter and summer.

Resources and Occupations.—I have to report similarly to last year that a very large number of the members of this band work for the fish companies that are operating at or near Warren's Landing, which is situated at the point where the Nelson river leaves Lake Winnipeg, and about twenty-four miles from the centre of the reserve. A large number also work for Ewing & Fryer, who have a freezer at Spider islands, which lie about thirty miles south of Warren's Landing, near the east shore of Lake Winnipeg. While the fish last, the Indians of this reserve have plenty of work and provision in sight. The Indians think that the fish are more plentiful now than they were ten years ago, which I have no doubt is accounted for by the fish hatchery at Selkirk, which is doing a great work for the fish interests of the lake.

Buildings.—The houses are all of log and a great number of them are very well built, and of neat appearance. They use the pit-saw to make nearly all their lumber, as the freight to the reserve is prohibitive to the Indian on lumber. The buildings used by the Methodists for the Indian boarding school are very well located on a high point on Little Playgreen lake, at Rossville, on the reserve, and from the lake present a fine appearance. The main building has a dining-room, two play-rooms, kitchen, principal's apartments, small rooms for the staff, and the dormitories for the boys and girls. They are going to build an addition, which will cost $800; it will contain a sick ward and more accommodation for the staff. The principal, Rev. J. A. G. Lousley, has since my last visit completed a new log stable, 28x30, and all the material was manufactured by himself and the boys. The boarding school has a good school-building, separate from the main building and in close proximity to the regular day school building belonging to the reserve.

Stock.—They keep a few head of stock, but they do not depend at all on this branch of industry. All the hay has to be cut in water and carried out on the rocks to dry; such being the case we can not expect this band to do much in the way of stock.

Farm Implements.—They have a number of ploughs and harrows, and plenty of the smaller implements for the garden.

Education.—The holidays were on at the time of my visit and the boarding school was closed, all the pupils being sent to their homes, so I was unable to inspect either the boarding school or the day school. The principal of the boarding school was also away in Ontario, and as a result no official inspection was made by me. I visited the buildings and found everything in good order and very little or no change from my last visit in the fall of 1903.

Religion.—Nearly all the members of this band are Methodists, a few being Anglicans. The Methodists have a large church and a good parsonage. Rev. J. A. G. Lousley is the pastor. The Anglicans have no church, but the teacher of a school about three miles from Norway House holds a Sunday service, which is well attended.

Characteristics and Progress.—The great bulk of the members of this band are of a law-abiding and industrious character, they want to see the laws against drinking and immorality enforced. They are also progressing in the way of becoming more settled in the homes they have built and are now building on the reserve. They also see the benefits that are accruing to their children through the department's spending large amounts of money to educate their children, and this year at the band meeting they expressed their pleasure at the way in which the government was carrying out its promises and are particularly well pleased to have their reserve made the headquarters of the agency. They also desired me to say that they will welcome the police that the government thinks of stationing among them to enforce the laws.

General Remarks.—The chief and councillor, also the band generally, were well pleased at the action of the government in sparing no expense to have the killing of one of the members of the band (Beacham) investigated and a proper trial held at Norway House—and from what they said, were satisfied.

CROSS LAKE BAND.

Reserve.—This reserve is situated on Cross lake, about seventy miles down the Nelson river. There is a good deal of rock in this country and all the garden patches are just pockets among the rocks. There is any quantity of bush suitable for fire-wood, but trees big enough for lumber are the exception. The area of this reserve is 7,760 acres, of which a portion is swamp.

Tribe.—The Indians of this band are also Crees, with an admixture of white blood.

Vital Statistics.—The population of this band consists of 74 men, 93 women, 86 boys and 78 girls, in all 331 people. There were 12 births (8 boys and 4 girls) and 4 deaths (1 boy and 3 girls) during the year.

Health and Sanitation.—The health of these Indians has been good through the past year, they live so much in the open air during their work in making a living that their health cannot but be good. Their dwellings have doors and windows and some of them that I was in were extremely well ventilated, the chinks in the logs being left open. On my pointing this out, they said that when winter comes they close them up when it gets too cold.

Resources and Occupations.—Fishing for sale and home consumption is one of the main summer occupations. Ewing & Fryer, a fish firm with headquarters at Selkirk, have a gasoline tug plying from the reserve to Whisky Jack portage, where it connects with a steam tug which carries the fish to Spider island. They buy sturgeon from the Indians, who make a large amount of money from the catching of that one fish alone, and if the government should open this territory for the catching of the whitefish, it will still further improve the Indians' chances for making a living.

Buildings.—The houses are all of log and just about equal to the houses on the other reserves in the agency. Quite a number of new houses are being built this summer. The school-house is quite a large building, but is in an unfinished state and needs to be sheeted inside at least to make it fit to teach in during the winter. The Roman Catholics have a very comfortable church and a new school-building, which is fitted up so that the children can go there in the winter without suffering any discomfort. The Methodists are about to build a new church. The Rev. Mr. Ferrier was at Cross lake during the treaty time arranging for the construction, and he told me that $1,000 was the amount at his disposal for that purpose and it was the intention to build this year.

Stock.—They keep very little stock on this reserve, not being able to get hay to put the animals through the winter.

Farm Implements.—They have enough implements for all the land broken up, which is all in small plots.

General Remarks.—The Hudson's Bay Company and a Mr. Hyer have posts here as well as Ewing & Fryer. Goods are sold to the Indians at reasonable rates. There is also a lot of fur caught by the Indians of this band during the fall, winter and spring, which helps them to make a comfortable living. They as a rule have good gardens on this reserve and raise a lot of potatoes.

Education.—The Roman Catholics have Mrs. Deschambault as a teacher, and the Methodists have engaged a Miss Armstrong, who will teach in the old school-building. Neither school was in operation during my visit, but the chief and council are satisfied now that they know both schools will soon be in operation. There are a large number of children in the vicinity of these schools and they will be well attended.

Religion.—The members of this band are nearly equally divided between the Methodists and Roman Catholics, two priests being there, living at the Roman Catholic mission, and the Methodists have a resident minister. They report a good attendance at the Sunday services.

Temperance and Morality.—The members of this band are very temperate, very little liquor gets as far as this from the lake, and from what I saw and heard, the Indians would prefer that none should come in.

The morals of the band will average up with that of any other reserve in the agency. One case came up before the agent and myself against a white man living near the reserve. The Indian girl had a child by him, he acknowledged that he was the father, and we fined him $100 or three months in jail. The band was much pleased and said it would be a warning to others.

LITTLE GRAND RAPIDS BAND.

Reserve.—This reserve is situated about one hundred and thirty miles up the Berens river. There is plenty of rock and also plenty of pockets of good land. The area is 4,920 acres.

Tribe.—The members of this band are Ojibbewas, and they have some relatives in the Lac Seul band, Savanne agency.

Vital Statistics.—The population of this band consists of 27 men, 34 women, 46 boys, and 29 girls, a total of 136. There were 5 births, (2 boys and 3 girls), and 5 deaths, (4 boys and 1 girl), during the year; of the 5 deaths, 3 were infants.

Health and Sanitation.—This is a healthy band. I never saw a finer or a healthier lot of children than in this band. These Indians live mostly in tents.

Resources and Occupations.—They depend altogether on fur to procure them clothing and groceries. They have plenty of fish and small game, so they are never at a loss for something to eat. There is a Hudson's Bay post here, and most of the Indians work for the company, directly or indirectly. Last year they raised 110 bushels of potatoes.

Buildings.—There are very few houses on the reserve. The Indians would like to assist in building a school at some central point.

Stock.—The Indians of this reserve have no stock.

Farm Implements.—They have some garden tools, such as rakes, hoes and spades, which they use in their gardens.

Education.—A school teacher has been sent into the reserve by the Methodist Church of Canada. A building has been rented from the Hudson's Bay Company, and Mr. Wm. Ivens, the teacher, expects to have quite a large attendance, at least during the summer months. The acting councillor and the band are very much pleased at the school opening and would like if possible to have a school-house built.

Religion.—Two-thirds of these Indians are Methodists, the rest pagans. The missionary from Berens River visits them occasionally.

Characteristics and Progress.—The members of this band are not making much progress. They have plenty to eat and drink and are well clothed. The acting councillor informed me that they do not want to change their reserve, as they can do well where they are. On inquiry later, I found that the chief, Jacob Berens, desires that, this part of his band change to where the Pigeon river empties into Lake Winnipeg.

Temperance and Morality.—None of the Indians of this band have much chance to taste liquor, they are so far inland. They are a fairly moral people, and have very little contact with the whites, outside of the Hudson's Bay Company's officials.

General Remarks.—We made the trip to this reserve in canoes ; it took nearly four days from Berens River reserve, and we had to unload and portage everything thirty-nine times, besides we tracked the canoes up five or six more rapids. There are fifty-two rapids between Berens River reserve and this one. The Indians of this band own 33 canoes, 45 nets, 126 traps, and 19 shot guns. They had 110 bushels of potatoes last fall and planted 20 bushels this spring.

PEKANGEKUM BAND.

This reserve is situated about one hundred miles east of Little Grand Rapids, on the Berens river. The heads of the families came down to meet us, and we paid them at that point. The population consists of 22 men, 27 women, 26 boys and 40 girls, a total of 115. There were 3 births (3 boys), and 1 death (1 boy), during the year.

They report having raised 356 bushels of potatoes, and having plenty of game and fish during the year. The Hudson's Bay Company gives employment to most of the people. They are nearly all pagans. They ask that a councillor be appointed so that they will have some one they can hold responsible for the proper division of the supplies that are sent to the destitute by the department.

GENERAL REMARKS.

I left Stonewall on July 4, and arrived back on August 12, taking just forty days to make the trip. We were on schedule time at all the reserves, except Poplar River, where we were one day late. We had an extremely rough and stormy voyage in the schooner 'Hustler.' We had our two-inch oak centreboard broken clean off even with the keel, and had twelve feet of the our foremast blown overboard in a heavy wind, and had to run thirty miles for shelter. Inspector Worsley, of the R.N.W.M.P., and two constables, accompanied us to all the reserves, and they searched all the boats belonging to the traders. In all they found four bottles of whisky, the liquor was poured out and the trader was fined $10. The Indians at all the reserves welcomed the police, and trusted that a number of them would be stationed at different points on the lake. There is no question that it would be of great benefit to all the Indians, who reside near the lake, to have a detachment of that body sent out to see that all the laws are observed.

RAT PORTAGE AGENCY.

The headquarters of this agency is situated at the town of Rat Portage, the office is on the second floor of the post office building, and the agent has two very comfortable rooms, with a vault attached, and there is nothing to be desired as to location. The storehouse is located near the Lake of the Woods, and is a small frame building owned by Mr. Pither, and is fairly suitable for the purpose. I inspected Agent R. S. McKenzie's books, and found his cash-book correctly and neatly kept; all the other books and papers connected with the office were also in good order. Mr. McKenzie appears

to be in touch with all the reserves in the agency, and reports the Indians in a fairly prosperous condition. I inspected the Rat Portage boarding school and found everything working to the best interests of the Indian children who are residents of the school. My full report on this school has been sent to the Indian commissioner, Winnipeg. I interviewed Dr. Hanson as to the health of the Indians of this agency, and he makes a very good report.

FORT FRANCES AGENCY.

The headquarters of this agency is situated at a point at the mouth of Rainy lake, and is a very choice location. The agency buildings are good and comprise a very comfortable house for the agent, an office and store-room, and also a small stable. Mr. J. P. Wright, the agent, has a very fine garden, with every kind of vegetable growing luxuriously, which ought to be a great object lesson to all the Indians who come to visit him. On my trip in on the boat, very fortunately for me, Mr. Wright happened to get on the boat in the morning, having been down the river on business connected with the agency, and as we travelled up the river he pointed out all the different reserves that are situated on the Rainy river. The bands settled along this river have certainly a very choice location, and ought to do well, but as I was shown as well a number of new houses erected for the especial purpose of selling liquor, these being all located on the American side of the river, it will be seen that there is an overpowering temptation placed before our Indians, and the results are very bad. I understand that most of these places are running without any license, which makes it all the worse, as they are under no sort of control.

I inspected the stores on hand, and also the books of the agency. The cash-book was found correct, and everything connected with the agency was in good order.

I have, &c.,

S. J. JACKSON,
Inspector of Indian Agencies.

NORTHWEST TERRITORIES,
ASSINIBOIA—ASSINIBOINE AGENCY,
SINTALUTA, August 15, 1904.

The Honourable,
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report together with a statistical statement and inventory of government property under my charge for the year ended June 30, 1904.

ASSINIBOINE BAND, NO. 76.

Reserve.—The reserve is a block of land, in size nine by eight miles, lying south and in distance about seven miles from the village of Sintaluta on the Canadian Pacific main line. It is rolling land and made up roughly speaking of about half brush and scrub and the remainder clear prairie containing many sloughs. The wood is poplar, balm of Gilead and willow.

Resources.—The natural resources are hay, wood and some senega-root. The Indians sell quantities of each to the settlers.

Tribe.—The Indians on this reserve are Assiniboines, sometimes, called Stonies, a branch of the Sioux.

Health and Sanitation.—The health of the Indians during the year has been good on the whole, and the calls upon the doctor and for medicines have been correspondingly few. Dr. Boujou, who lives in Sintaluta, visits cases upon the reserve when called upon. Some of the older Indians still prefer their own medicine man, but this class is getting less in numbers and losing its hold on the younger generation.

Population.—The population of the Assiniboines is 210, of which some are in the United States.

Occupations.—About fifteen families are engaged in farming and stock-raising and others work for wages among the settlers, whilst some engage in selling wood, fence-pickets, &c., and also in tanning hides, and other sundry work of all kinds.

Buildings.—The buildings occupied by the Indians are mostly of log. As the logs as a rule are small, some ingenuity is required to make a good house, but they make them fairly comfortable and generally keep them clean. Their stables are also made of logs, and whilst most are not much to boast of in appearance they are warm and comfortable in winter.

Stock.—The cattle are doing very well. We had some losses last winter owing to the cattle being taken up thin in the fall, caused by the close manner in which they had to be herded in the day-time and corralled at night to keep them out of the crops. A number of the settlers had heavier losses, as the winter was long and severe. The herding is now a thing of the past, as, owing to the department's having kindly loaned the money, a pasture about three miles and a quarter square has been fenced in by the Indians and the cattle roam practically at will on the best of feed, night and day. I may say that the Indians have already made a substantial repayment of the money advanced. It is difficult to get many of the Indians to take hold of stock from the fact that there is an increasing cash market for hay, which they prefer selling to feeding to stock.

Implements.—The Indians own a considerable number of implements, which they have purchased with their own money, such as mowers, binders, seeders, &c.

Education.—There is no school on the reserve; the children of school age attend the industrial schools at Regina and Fort Qu'Appelle, respectively.

Religion.—The religious wants of the Indians are attended to by the Presbyterian Church, which has a good stone building on the reserve and a resident missionary. The Roman Catholics also have a frame building on the reserve, which is used occasionally for services.

Characteristics and Progress.—The Indians are steadily progressing towards self-support and no rations are issued to the able-bodied. In fact with the exception of a few old and sick, I am glad to report that the band is self-sustaining and the ration-house is a thing of the past.

Whilst the increase in the quantity of grain raised and also the cattle, has been steady, it would have been more so if some of the older Indians had continued farming, but these, finding that they could make what to them is a more congenial living by working for settlers, selling wood, &c., have given up farming. In the past the rations usually given to working Indians from the agency acted as a loadstone to keep them farming in a manner, but as they found the rations cease, they preferred other modes of making a living to tilling the soil. The younger generation will in time no doubt, increase the number engaged in agriculture. The dress and habits of the Indians have undergone a marked change in the last few years, and the blanket, long hair, paint, &c., are gradually giving way to a more civilized attire. The heathen dances are stopped, and although at first their suppression caused some grumbling, I think the Indians have become reconciled to the change. On first settling on reserves the Assiniboines split up ; part remaining in Canada and part settling in the United States. A close relationship has existed and their visits to each other have been

much against their progress. Endeavours are being made to curtail these in the interest of the Indians themselves.

Temperance and Morality.—These Indians do not trouble to get liquor as a rule. There are a few members of the band who will take it if it comes in their way, but on the whole their behaviour in this respect is as good as that of any white community of the same number. Regarding their morals, there are one or two who are not as good as might be, but the band as a whole are well-behaved.

General Remarks.—The crop last season was a banner one and far exceeded any previous one in quantity. Unfortunately, owing to the prolonged wet weather, hindering the grain from ripening, it was all frozen. This was most discouraging, as it not only reduced the quantity but the quality as well, some of it being totally unsaleable. The band has just taken prizes for work at the Sintaluta and Regina fairs respectively. A larger exhibit at both places could have been made, had time permitted.

In conclusion, I am glad to say that the progress of the Assiniboines towards civilization and self-support is steady and I believe permanent, and in the future the calls upon the department for assistance will be strictly confined to a very few old and sick people and the expense very small.

MOOSEJAW SIOUX.

These Indians, commonly called the Moosejaw Sioux, are a remnant of Sitting Bull's band who came from the United States during the hostilities in 1876-7. For some years they hunted about Wood mountain and with the disappearance of the buffalo, came to Moosejaw, making a living by doing work around town, selling beadwork, &c. Whilst they do not receive much from the government, they are non-progressive, living in tents the year round. Some of them are fond of liquor and notwithstanding that several persons have been fined for supplying liquor to them, they no doubt still get it frequently. They would be better settled on a reserve away from the town.

The population of the Sioux at Moosejaw and vicinity is 112.

I have, &c.,

THOS. W. ASPDIN,
Indian Agent.

NORTHWEST TERRITORIES,
BATTLEFORD AGENCY,
BATTLEFORD, September 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on the affairs of the Battleford agency, for the fiscal year ended June 30, 1904.

This agency comprises seven reserves, situated at distances of from fourteen to forty-four miles from the town of Battleford.

The buildings of the agency headquarters are conveniently and centrally located on the Battle river, about two miles south of the town.

RED PHEASANT BAND.

Reserve.—This reserve consists of 24,320 acres, and is located twenty-two miles southeast from Battleford, in the Eagle hills.

Tribe and Population.—These Indians are Crees, and number 40 men, 38 women, 36 boys, and 36 girls, making a total of 150.

Resources and Occupations.—Oats and barley are a sure crop on this reserve, but hitherto it has always been regarded as unsuitable for the raising of wheat, as, owing to the situation, it is so liable to summer frosts; this year, however, we have three or four fields of wheat which have the appearance of fully maturing.

The soil is excellent and hay is abundant; water is plentifully distributed, in the shape of lakes, all over the reserve.

Much wood has of late years been destroyed by fire, but there yet remains sufficient for present needs.

These Indians make a good living by raising stock, freighting, burning lime and charcoal, working for settlers, and from the sale of muskrat skins.

The crops on this reserve were very meagre last season.

Stock.—There are 365 head of cattle owned by this band; they are well cared for, and are quite a source of revenue.

Farm Implements.—These people are well equipped with wagons, mowers, rakes, binders, and all other necessary implements; they have paid for these things out of the proceeds derived from the sale of hay and fat cattle.

Education.—There is a very good day school on this reserve; it is conducted under the auspices of the Church of England; the attendance is regular, the teacher takes great interest and pride in her work, and the children make fairly good headway with their studies; they also look neat, clean, and cheerful.

I am glad to say that a few of the parents are beginning to appreciate the value of some education for their children, and I trust that the number will yearly grow larger.

Religion.—The major portion of this band are Anglicans, the rest being Roman Catholics.

Services are regularly held in the church on the reserve, by the Rev. Mr. Inkster, and the attendance is very good.

Charasteristics and Progress.—The men of this band are very steady and industrious; they are striving to make an independent livelihood, and are making very satisfactory progress in that direction.

Their houses, for the most part, are clean, tidy, and comfortable; and a number of them have shingle roofs, and good lumber floors, with a very fair quantity of furniture.

As to their morals, I think I am safe in saying that they are distinctly higher than those of the average Indian.

Temperance is, perforce of circumstances, strictly adhered to on this reserve; although it is only by constant supervision, and advice, that the inclinations of some of the younger members are curbed.

SWEET GRASS BAND.

Reserve.—The reserve has an area of 42,528 acres, and is located on the south side of Battle river, twenty miles west of Battleford.

Tribe and Population.—All these people are Crees; there are 24 men, 35 women, 17 boys, and 16 girls, a total of 92 souls.

Resources and Occupations.—Devil's Drum creek runs through this reserve, and as it is open winter and summer, a plentiful supply of water is always obtainable. There is enough hay for their cattle and horses, and also timber for their own requirements.

The land is well suited for the raising of wheat and oats.

Live stock and grain are the principal means by which these people make a living; they also do some work for settlers, a little freighting, burn lime and occasionally haul a few loads of fire-wood to town.

The crops last year were very poor; yet these people lived just about as comfortably as usual, which shows that they have already a knowledge of providing their own sustenance.

During the early part of this year these men erected a good substantial bridge across Devil's Drum creek, and also made considerable improvements on the Cut Knife trail, which work was paid for by the Northwest government.

They also completed fencing a pasture-field, of about 3,000 acres, for their cattle.

Stock.—The cattle here are a very well-bred bunch of animals, and are carefully tended; they number, in all, 333 head.

Buildings.—The houses are all built of logs, and are mudded; they are whitewashed at least once a year; they are warm and comfortable in the winter-time, when they are mostly used, but there is a tendency towards overcrowding ; this I hope to remedy, in the near future, by inducing them to build additional dwellings, and of a better class.

Farm Implements.—These Indians are well off for farm implements of every description, and by the way they take care of them show that they appreciate their worth.

Education.—Education for the children of this band is amply provided for by the industrial and boarding schools.

The day school here was closed more than a year ago on account of insufficient attendance.

Religion.—A few pagans still exist in this band, but the greater portion of these Indians belong to either the Roman Catholic or Anglican Churches.

Services are seldom held on the reserve; so the Indians may be somewhat excusable if they are not quite up-to-date on religious topics.

Characteristics and Progress.—These Indians are very law-abiding and industrious; a few of them have a hankering after spirituous liquors, but when detected, are promptly and severely punished, which has a most wholesome effect on their future behaviour.

Their morals are fairly good ; although some of the young folks have an elastic code of ethics, which needs constant watchfulness on the part of the officials to keep them out of mischief.

POUNDMAKER AND LITTLE PINE BANDS.

Reserves.—There are two reserves here, which adjoin one another; they are situated on the south side of Battle river, about forty miles west of Battleford. The combined area is 35,200 acres; the main part of which is splendid agricultural land, the remainder being well suited for grazing purposes. Wood and water are plentiful. Of hay there is only a limited quantity; and it taxes all the efforts of these Indians to procure enough for their large number of cattle; we have hitherto been successful in this measure, but it was by gathering a good deal of the hay on lands outside the reserves; now, however, that the district is being settled so rapidly, we shall have to grow fodder, in order to supplement our crop of wild hay.

Tribe.—These Indians are Plain Crees. The combined population of the two bands consists of 62 men, 66 women, 51 boys and 40 girls, making a total of 219 souls.

Resources and Occupations.—Grain and stock raising are the staple industries on these reserves. The Indians also do some work for settlers, and a little freighting; they make a good comfortable living, and will soon be totally independent of the storehouses; even last year when the crops were a partial failure, they earned their flour by working in some other manner; the only drawback being a scarcity of good seed wheat for this spring.

Stock.—The cattle owned by these bands are of extra good quality, and they are doing well, as the Indians are very particular in the care of them. A noticeable im-

provement is observed in the horses belonging to these bands; there is a strong tendency to get rid of their smaller ponies, and replace them with general purpose horses; in this endeavour they are receiving every encouragement, as I consider that good strong horses are an indispensable necessity to run their binders and mowers. Some of these men are very successful in the rearing of sheep and pigs.

Education.—Two day schools are in operation here ; the one on Poundmaker reserve being under the management of the Roman Catholic Church ; the other is situated on Little Pine reserve, and is controlled by the Church of England authorities. During the past year the attendance has not been what might be called quite satisfactory; some progress, however, has been made, and I trust that in the future a larger number of children will attend regularly at both of these schools.

Buildings.—All the houses are built of logs, mudded, and whitewashed; a few of them have shingled roofs, the rest being covered with poles and sods. Every year sees a great improvement in the class of houses erected, and also in the manner in which they are furnished, and kept. A good deal of this better state of affairs, is due to the Indians' noticing and copying from their white neighbours, who are getting to be quite numerous.

Farm Implements.—These bands have a full complement of farm implements, which they carefully look after, and keep in good working condition.

They have paid for all these implements out of their own earnings, and by the sale of cattle and beef.

Religion.—Paganism is dying out slowly, but surely; some of the older folks still cling tenaciously to sun worship; the majority, however, are just as earnest in their endeavour to live a Christian life.

Services are occasionally held in the Roman Catholic church, and the Church of England school; these services are well patronized by the Indians, who are attentive listeners to the expounding of religion.

Characteristics and Progress.—These Indians are very frugal, and domesticated in their habits; they are farmers and stockmen, and to give an instance of how they are becoming self-sustaining, I may say that during the fiscal year 1898-9 these bands received 151 sacks of flour from the government; in 1902-3 they received 60 sacks, and in 1903-4, 61 sacks were issued to them, and notwithstanding this very large reduction of rations, they are more cheerful and contented now than was the case when they were spoon-fed.

The morals of these Indians will favourably bear comparison with many communities of white people; and I am glad to say that no intemperance exists on either of these reserves.

STONY BANDS.

Reserve.—At this point there are two reserves, which join one another. They are about 14 miles south of Battleford.

The Mosquito reserve consists of 23,040 acres.

Grizzly Bear's Head and Lean Man bands are on the other reserve. which contains 23,168 acres.

These reserves are made up of high rolling country, partially wooded with poplar and balm of Gilead; there are stretches of open prairie, containing a rich black soil well adapted for cultivation, but also very liable to summer frost. There are other portions where the surface is undulating, and in the hollows and flats around the larger lakes there are excellent hay-grounds, and large tracts are well suited for grazing and stock-raising.

Tribe and Population.—The members of these bands are all Stonies. There are 24 men, 26 women, 14 boys and 5 girls; a total of 69.

Resources and Occupations.—These Indians are not good farmers; it is very difficult to get them to work steadily. They make a good living by freighting, and the sale of hay and fire-wood, also by hunting small game.

Buildings.—The Stony houses are the poorest and dirtiest in the agency. We are constantly advising them to improve their domiciles, but I can only notice an improvement in one or two places.

I am thinking of inducing them to tear all their old houses down and erect new ones that would be more substantial, comfortable and healthy in their structure.

Stock.—The cattle belonging to these bands are of first-class quality, although they only number seventy-four head.

A pasture-field of 2,600 acres is now being prepared, so that when the fence is completed, I trust that we shall be able to keep the stock from wandering all over the prairie, and that it will also be an aid to increasing the herd.

Farm Implements.—As at present the Stonies do not go in extensively for agriculture, they have all the implements they need; besides these they are well equipped with wagons, mowers and rakes.

Education.—The day school under the control of the Church of England authorities, has given very poor results so far, chiefly I consider on account of the teachers being no good ; a change of teacher is now taking place, so that I hope a very great change for the better will be shown at this school.

Religion.—Paganism still continues to be the general belief among these bands, although there are about twelve or fifteen people who are nominal members of the Roman Catholic and Anglican Churches.

MOOSOMIN BAND.

Reserve.—Moosomin reserve is twelve miles west of Battleford. It contains 14,720 acres. This land lies between the Saskatchewan and Battle rivers; the country is rolling and partially wooded with bluffs of poplar; the soil is a sandy loam, and is well adapted for both agriculture and stock-raising.

There is also a hay reserve, for both Moosomin and Thunderchild bands, of 960 acres, at Round hill, twenty miles northeast of Battleford.

Tribe and Population.—The majority of these Indians are Crees, the rest being Saulteaux. There are 30 men, 28 women, 28 boys and 28 girls, a total of 114.

Resources and Occupations.—Mixed farming is successfully carried on by the members of this band. These Indians are very progressive; in addition to farming, they do a lot of work for settlers, haul fire-wood to town, and in fact make a very good living. Last year's crops were very poor, but they made up for this shortage by earning money in other ways.

Stock.—The stock belonging to this band is very well bred, and is in fine condition; there are 239 head. The horses, with few exceptions, are small; but I look for a great improvement in the near future, as the stallion provided by the department last year has produced some good-looking colts.

The houses and stables on this reserve have been somewhat improved and repaired, they are in fair condition and more comfortable than was previously the case.

Farm Implements.—All the members of this band are completely equipped with farm implements, which, when not in use, are carefully kept under cover.

Education.—There is no day school in operation on this reserve, but the boarding and industrial schools in this district can amply accommodate any children of school age on this reserve.

Religion.—There are still a few pagans here, but I am glad to say that their numbers are steadily decreasing. The remainder of this band are members of either the Roman Catholic or Anglican Churches.

Characteristics and Progress.—These Indians are becoming self-reliant and independent in their character; they are steady and very industrious.

Law and order prevail here; a good moral tone is also observed by these people.

Reserve.—The Thunderchild reserve adjoins that of Moosomin, and is eighteen miles west of Battleford. It comprises 15,360 acres on the south side of the North Saskatchewan river, and 5,440 acres on the north side of the same river.

In addition to this, they have a share of the hay reserve at Round hill.

The land is rolling prairie of black loam with scattered bluffs of poplar and willow.

The reserve is very well adapted for mixed farming.

Tribe and Population.—Nearly all the members of this band are Crees; the others are Saulteaux.

There are 39 men, 36 women, 24 boys and 24 girls, making a total population of 123 Indians.

Resources and Occupations.—Mixed farming is practised with more or less success by these Indians; they also do a good deal of work for settlers, freighting for the merchants, and hauling fire-wood to town.

Buildings.—The buildings on this reserve are not of first-class quality, yet a number of them are kept clean and comfortable while they are inhabited during the winter time.

Stock.—There are 213 head of cattle belonging to the members of this band. They are a fine bunch of animals, and are in prime condition.

Farm Implements.—These Indians have sufficient farm implements for their requirements. They have paid for them out of their own earnings, and look after them very carefully.

Education.—The day school, managed by the Church of England authorities, is still in operation, but the attendance is small.

The boarding school, adjacent to this reserve, conducted by the Sisters of the Assumption, still continues to do excellent service. I cannot speak too highly of the manner in which this institution is conducted. The children all look clean, happy and intelligent. They are making splendid progress, and I think that when these children are discharged from school, the training they have undergone will have a very beneficial effect in their own future lives, and also in those of their brethren.

The proximity of this school to the reserve is also a present, potent and good example to these Indians.

Religion.—Regular services are conducted in the Church of England day school, and at the Roman Catholic mission adjoining the reserve. Both these services are well attended, and the Indians appear to be devout and attentive in their manner of worship.

Characteristics and Progress.—The young men of this band are very good workers, and are quite alive to the fact that they must make their own way in the world.

They are inclined to be somewhat lazy at times, and need to be continually spurred and encouraged to keep them moving in the right direction.

I am sorry to say that they have not made any advancement in their farming during the past year, but as a change of farming instructors is taking place, I hope that these people will soon make up for lost time in this direction.

The morals of these Indians are good, and they are, perforce of circumstances, total abstainers.

REMARKS APPLYING TO THE WHOLE AGENCY.

Vital Statistics.—We paid 767 Indians this year, which is an increase of 2 over last payments.

There were 34 births and 50 deaths during the fiscal year.

Health and Sanitation.—During the past winter the bands of Moosomin, Thunderchild, Sweet Grass and the Stonies, and the boarding school, were heavily scourged by small-pox. Only three deaths occurred, but the disease was, generally, of a very severe form, and hideously marked a number of the Indians.

It was only by the most strenuous exertions on the part of the employees that this disease was confined to these bands.

With the exception of the small-pox epidemic, the Indians have had excellent health.

Stock.—As cattle are one of the main staples of industry here, they are also the chief object of care. They are like a well and judiciously handled investment, a source of food, revenue and profit.

Our calf crop is a good average one, and they are all strong and hearty.

Characteristics and Progress.—The Indians of this agency are an intelligent, industrious and law-abiding people.

They are up-to-date in their ideas and methods of making a living; and I do not think that the date is far distant when they will be totally independent of government aid, although they will, for a number of years, have to be carefully supervised, in order that they may be kept in the right path.

During the year we got the saw-mill, supplied by the department, into active operation, and cut about 80,000 feet of lumber. This will be a great and much-needed help for roofing and flooring the Indians' houses, also for making bedsteads, tables and other articles of furniture.

The amount realized during the past fiscal year from the sale of cattle and beef was $6,453, the greater portion of which was invested in farm implements.

The above-mentioned sum would represent about two-thirds of their income, the balance being earned by the sale of lime, fire-wood and furs, and freighting.

I am having large pasturages made on all the reserves, averaging about 3,000 acres on each of the seven reserves. This is so that the cattle may be able to range, under easy control, from the time they are turned out of the stables in the spring until it is again time for them to be taken into winter quarters.

I am glad to say that there are no cases of crime to report.

Cases of immorality are very rare, much improvement having been shown in this direction.

Several cases of Indians having received intoxicating liquors, have taken place during the year; but in every instance a very severe punishment has been meted out to both the Indians and the persons who supplied the whisky.

Miscellaneous.—The advent of railroad construction, and a very large influx of new settlers into this district, have opened new fields and possibilities for the advancement of our Indians; they have also brought in their train fresh means of temptation and demoralizing effects, which will have to be overcome by increased care and watchfulness on the part of the department's officials.

My staff has done its utmost to aid me in carrying on the work of the agency.

I have, &c.,

J. P. G. DAY,
Indian Agent.

NORTHWEST SUPERINTENDENCY,
BIRTLE AGENCY,
BIRTLE, August 29, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following annual report, together with agricultural and industrial statistics for the fiscal year ended June 30, 1904.

Headquarters.—The headquarters of this agency are located in the town of Birtle, Manitoba, which is on the northwestern branch of the Canadian Pacific railway.

Tribes.—There are nine reserves in this agency. Five are occupied by the Saulteaux and four by the Dakota or Sioux, who receive no annuity, but were given reserves and assistance in cattle and farm implements.

The Saulteaux are a branch of the Ojibbewa tribe and receive an annuity of $5 for each Indian and for each chief $25 and headman or councillor $15.

BIRDTAIL SIOUX BAND, NO. 57.

Reserve.—This reserve has an area of 6,400 acres and is located at the junction of the Birdtail creek and the Assiniboine river. The soil is a light loam and well adapted for wheat-growing and root crops. The soil in the valley is clay loam and suitable for grain-growing. The hay-supply is secured in the valley along the Assiniboine river, Birdtail creek in section 28, township 14, range 27, west of the 1st meridian. Wheat and oat straw is also saved after the harvest and fed to stock during the winter months.

There are about six hundred acres in wood, mostly scrub, consisting of oak, elm, maple and small poplar. The Assiniboine river borders the south and west and the Birdtail creek runs through the northwest portion of the reserve.

OAK RIVER SIOUX BAND, NO. 58.

Reserve.—This reserve has an area of 9,700 acres, and is located about eight miles north from Griswold, Manitoba, a town situated on the main line of the Canadian Pacific railway, and the reserve post office. The soil on the reserve is a mixture of light and heavy loam, and is well adapted for the raising of wheat and roots of all kinds. Wheat grown on this reserve generally grades No. 1 hard. On some of the hills the land is stony and sandy and is only suitable for pasture. There is about 1,000 acres in wood, mostly elm, oak and poplar. With the exception of elm the growth is small. The Oak river runs through the northeast corner and empties into the Assiniboine river. The Assiniboine river is the southern, and part of the eastern boundary of the reserve. The hay-supply is cut on the river flats.

OAK LAKE SIOUX BAND, NO. 59.

Reserve.—This reserve has an area of 2,560 acres and is located about four miles north of Pipestone, Manitoba, a small town on a branch of the Canadian Pacific railway. The soil is a sandy loam and there is about 1,050 acres suitable for cultivation. There is about 150 acres in wood, principally ash, elm, maple and poplar, and 1,450 acres in pasture and hay-lands. The Pipestone creek flows through the eastern portion of the reserve.

TURTLE MOUNTAIN SIOUX BAND, NO. 60.

Reserve.—This reserve has an area of 640 acres and is located on the northern base of the Turtle mountains. There are 10 acres in wood and the remainder is suitable for cultivation and pasture-land. Deloraine, Manitoba, a small town on the Pembina branch of the Candian Pacific railway, is the nearest town and post office.

KEESEEKOOWENIN'S BAND, NO. 61.

Reserve.—This reserve is located on the Little Saskatchewan river and on the southern base of the Riding mountains, and has an area of 6,660 acres. The Indians of this reserve have also a fishing station on the northern shores of Clear Water lake, about 12 miles northeast of the reserve. The soil is a rich black loam and suitable for raising grain and roots of all kinds. In the flats along the river there are large hay meadows irrigated by the Little Saskatchewan river, which runs through the reserve from north to south. There are numerous small lakes and ponds on this reserve. There

are 1,000 acres in wood, mostly small poplar. Fires have destroyed most of the large timber. The Canadian Northern railway, from Neepawa, Manitoba, has its line graded through the southeast corner of the reserve. Strathclair is the nearest town to the reserve, being located 10 miles south, on the northwestern branch of the Canadian Pacific railway.

WAYWAYSEECAPPO'S BAND, NO. 62.

Reserve.—This reserve has an area of 24,960 acres and is located about 15 miles in a northeasterly direction from Birtle, and on the Birdtail creek, which runs through the northeast corner of the reserve. In the southern and western portions there are numerous lakes, ponds and hay meadows. The soil is a heavy black loam and suitable for raising grain and root crops; and an ideal reserve for stock-raising. Rossburn is the nearest village to the reserve, being about 5 miles east.

VALLEY RIVER BAND, NO. 62½.

Reserve.—This reserve has an area of 11,680 acres, and is located at the junction of the Valley river and Short creek, and about 15 miles west of Grand View, Manitoba, a small town on the Canadian Northern railway. This line is now completed and trains run through the reserve to a point 60 miles further west. Strevel is the name of the station on the reserve. There is a section-house built at this point. The soil is a light loam suitable for grain-growing, but owing to the hilly nature of the land it is best adapted to stock-raising. There are about 2,460 acres in wood, mostly spruce and poplar. Fire has done great damage to the timber on this reserve. There is still good timber on the reserve suitable for lumber, railway ties, &c., also large quantities of fire-wood. The hay-supply is secured along the Short creek and sloughs on the reserve. The lumber industry is carried on to a large extent in the vicinity of the reserve, and gives employment to the Indians.

GAMBLER'S BAND, NO. 63.

Reserve.—This reserve has an area of 774 acres, and is situated on Silver creek. The Assiniboine river is on the west side, and Binscarth, a small village on the northwestern branch of the Canadian Pacific railway, is 5 miles northeast from the reserve. The soil is a black sandy loam, with poplar bluffs and some scrub oak, and well adapted to the growing of grain and root crops.

ROLLING RIVER BAND, NO. 67.

Reserve.—This reserve has an area of 12,800 acres, and is located about 8 miles north of Basswood, Manitoba, a small village on the northwestern branch of the Canadian Pacific railway. The reserve is undulating, with a great deal of poplar and willow brush. There are numerous lakes (four of which contain fish), ponds and hay meadows. The soil is a rich black loam, suitable for grain-growing and raising stock. There are 4,500 acres in wood. The Rolling river runs through the eastern portion of the reserve from north to south. The branch line from Neepawa, of the Canadian Northern railway, runs past the northern boundary of the reserve.

REMARKS APPLYING TO THE WHOLE AGENCY.

Vital Statistics.—The population of the bands in this agency is as follows : 221 men, 269 women, and 390 young people under twenty years of age. There was a decrease of 10 in the population during the year, accounted for as follows: 25 births and 39 deaths, 17 joined this agency, transfers from other agencies, 13 left this agency, transfers to Portage la Prairie and Crooked Lake agencies.

Health and Sanitation.—The health of the Indians during the year has been fair. Whooping-cough was prevalent on the Keeseekoowenin's reserve; one death resulted

from this disease. The majority of the deaths were among children, and the principal cause of death was tuberculosis, in some one of its many forms. The dwellings in this agency are kept in good order; of course there are some who will not improve their houses, which are not what they should be, but on the whole, the majority keep them in fairly good order and take delight in doing to. All the refuse that accumulates during the winter months is raked up and burned. Most of their houses are whitewashed on the inside.

Resources and Occupations.—The Sioux Indians of the Oak River, Birdtail and Oak Lake Sioux bands, earn their living by farming. This season, 1904, the Indians of the above bands have under cultivation 2,885 acres in wheat, oats, barley, corn, potatoes and garden stuff. The prospects for a bountiful harvest are very assuring and much brighter than last season. Considerable money is also earned by the sale of ponies, cattle, fish, wild fruits, baskets, mats and bead-work, which they sell to merchants and white settlers in the vicinity of their reserves. The value of the wheat, oats and barley raised last season, 1903, by the Sioux bands, amounted to over $24,000. A new source of revenue, commenced last year, was from contracts taken by the owners of two threshing-machines, who, after finishing in a very satisfactory way all the threshing on the reserve, undertook threshing for the white settlers in the vicinity. They gave good satisfaction in every instance, and in this way realized snug sums from their new venture. The Saulteaux Indians farm on a small scale and raise a little grain, and nearly all have small gardens of potatoes and other vegetables. They add to their income by the sale of cattle, wood, hay, baskets, mats, senega-root, working on the river drives and for farmers in the vicinity of their reserves. The heads of families succeed in making a good living for them during the year.

Buildings.—The houses in this agency, are mostly built of logs, hewn on both sides with dovetailed corners and gabled roofs and of good size, and in most cases have a kitchen annex. We have also twenty-two frame houses, and a number of these have been built on stone foundations, with kitchens annexed. These frame houses have been neatly and well built and the work has been done by the Indians themselves. Several frame stables and barns have also been built on the Oak River Sioux reserve. The cattle and horse stables are mostly built with logs, with earth and board roofs, and make good warm buildings for their stock during the winter months.

Stock.—The stock in this agency is in good condition. On most of the reserves larger-sized horses are being purchased by the progressive Indians, for farming purposes. The Indians take good care of the thoroughbred bulls furnished by the department and, notwithstanding the past long winter and hay running short, all the bulls, fourteen in number, came through in good condition. March and April were two hard months on cattle, feed running short; and these months being cold and stormy, and the animals being in a weak state, the casualties amongst the cows and young stock were heavy. The animals suffered from indigestion, caused by poor feed and drinking too much snow water.

Farm Implements.—All the reserves in this agency are well supplied with farm machinery, and the progressive Indian, each season, if he requires a new implement, purchases only an up-to-date plough, binder, seeder, &c., as required, at his own expense. There are two steam threshing outfits in this agency owned by individual Indians. The implements in this agency comprise walking, gang and sulky ploughs, seeders, binders, disc and drag harrows, cultivators, land-rollers, mowing-machines and rakes, wagons and bob-sleighs. In most cases good care is taken of their farm machinery.

Education.—In this agency there is one boarding and one day school. The boarding school is in the town of Birtle and has an average attendance of forty-two pupils. The staff is as follows:—principal, matron, assistant matron and teacher. The progress made during the year is very satisfactory. The girls are taught general housework, cooking, &c., and the boys gardening, use of carpenter's tools and the care of stock, besides their usual school studies. The members of the staff are to be commended for

their strict attention to their duties and the interest they take in their pupils. The day school is on the Keeseekoowenin's reserve and is called the Okanase day school; it is fairly well attended and the pupils, who are very bright, are making progress in reading and speaking English. There are a number of children from this agency who are pupils of the Regina, Elkhorn, Brandon and Qu'Appelle industrial schools, also the Pine Creek and Cowessess boarding schools. The Indians, with some exceptions of course, are taking more interest in the education of their children, and prefer the boarding and day schools to the industrial. This is, I believe, on account of the boarding and day schools being nearer and in closer touch with the reserves.

Religion.—Religious services are held regularly by the Presbyterians on the Birdtail Sioux, Oak Lake Sioux, Waywayseecappo's, Keeseekoowenin's and the Rolling River reserves, and an Anglican service on the Oak River Sioux reserve. The attendance at the Presbyterian services by the Indians of the Birdtail Sioux and Keeseekoowenin's reserves is very encouraging, and nearly all the adults take an interest in the services. On the Waywayseecappo's and Rolling River reserves the Indians take very little interest in religious matters. On the Valley River reserve no religious services of any kind are held, although a number of the Indians are interested and desire to have a minister to perform religious services for them, offering to erect a log building, to be used for church purposes. The attendance of the Oak River Sioux Indians at the Anglican services is small. Sunday school is also held every Sunday afternoon, presided over by a native lay teacher, Itoyetanka; a number of the young men attend. Birdtail Sioux, Oak Lake Sioux, and Waywayseecappo's, have each a church-building on their reserves. At Rolling River services are held in the missionary's house, on the reserve, and at Keeseekoowenin's in the school-house, all Presbyterian. The Anglican services for the Oak River Sioux Indians, are held in the mission church, a short distance east of the reserve. As an evidence of interest in religious matters, the Indians of the Birdtail Sioux reserve contributed the sum of $86 towards the Home and Foreign mission funds of the Presbyterian Church.

Progress.—I am very pleased to report that the Indians of this agency are progressing. The acreage under crop this season, 1904, is 3,284 acres, mostly in wheat, oats and potatoes. The grain return last season amounted to 59,749 bushels, and graded mostly No. 1 and 2 northern, and potatoes 4,098 bushels. Among the progressive Indians are Jos. Boyer and Geo. Bone of the Keeseekoowenin's reserve, who are good farmers and have this season 86 acres in wheat and oats, have good houses and stables and have over 56 head of cattle and 9 horses between them. Sunkahonahon, Moses Bunn and John Thunder of the Birdtail Sioux reserve have this season among them 270 acres of wheat and 62 acres in oats and 5 acres in barley, besides gardens. They have good comfortable houses and stables and have 26 head of cattle and 23 horses. Tunkancekiyana, Kinyanwakan, Caskehanska, Itoyetanka, Harry Hotanina and Mahpikaska of the Oak River Sioux reserves have all good frame houses with kitchens annexed. Itoyetanka and Kinyanwakan have good frame stables, and the others good log stables. They have also the necessary farm machinery and two steam threshing outfits. They have among them, under cultivation, 626 acres in wheat and oats, besides gardens. A number of horses, granaries and stables have been built during the year.

Temperance and Morality.—There were five liquor cases during the year; four resulted in convictions and one case was dismissed for lack of evidence. The liquor is generally obtained during visits to the towns and villages in the vicinity of reserves.

The morals of the Indians in this agency are very good; of course there are a few who might improve in this respect, but, on the whole, the standard is improving.

Crops.—Ploughing and seeding were retarded by the late cold spring, and some of the grain was late in being sown. The summer months, however, were excellent for growing crops, although in June the grain suffered for want of moisture; rain fell, however, in time, and the prospects for a bountiful harvest are very bright indeed. The late-sown grain will not be ready to cut before September, but the early-sown should

be ready for the binder in August. Some cutting was done on August 15, but cutting will not be general until about August 25. The sample will be much better than last season.

General Remarks.—During the past year at the agency headquarters, a new office has been built, 18 x 21 feet, frame, and painted outside and oiled inside. It is a neat substantial building. There has also been built and painted outside, a kitchen, attached to the agency house, 16 x 18 feet, one story and a half. It requires to be sheeted on the inside. The Sioux Indian Young Men's Christian convention was held on the Birdtail Sioux reserve in June, and the Indians from the surrounding reserves assembled there for their mutual benefit and improvement. I think that an occasion of this kind, in which so much good feeling and religious fervour is shown, is a very great evidence of progress, both in religious and material matters, for unless they were improving along both lines, there would be wanting both the feeling of good fellowship and the spirit of hospitality which were marked features of this convention. There has been no change in the staff since my last report, and they continue to discharge their duties satisfactorily.

I have, &c.,

G. H. WHEATLEY,
Indian Agent.

NORTHWEST TERRITORIES,
ALBERTA—BLACKFOOT AGENCY,
GLEICHEN, July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs.
Ottawa.

SIR,—I have the honour to submit the report of this agency for the fiscal year ended June 30, last.

Reserve.—The Blackfoot reserve, with its area of 470 square miles, is situated just south of the main line of the Canadian Pacific railway, about 50 miles east of the city of Calgary.

The Bow river enters the reserve near the northwestern boundary, runs in a southeasterly direction, and leaves the reserve very near the southeast corner. Crowfoot creek enters on the northern boundary and empties into the Bow river within 10 miles of the eastern limit. In the southwestern portion of the reserve the two Arrow-wood creeks rise, and, flowing northerly, also empty into the Bow river.

On both the north and south sides of the Bow, are ridges of low sandy dunes. Some scrub and small timber grows on these sandy dunes and along the river and creeks.

The banks of the Bow river average about 150 feet in height, in some places sloping gradually for a mile or more back from the stream, but in others rising almost perpendicularly, when they are known as 'cut banks.'

This river valley consists of not only the river bed, but, at intervals, fertile valleys and plains covered with scrub or heavier timber. The uplands on both sides of the Bow are rolling prairie, broken in places by ponds and the sandy dunes before referred to. Both valley and upland produce rich pasturage for stock, and it is only rarely that the snow lies so deep as to prevent the gaining of a subsistence thereon by cattle or horses.

Tribe.—Only the historic Blackfeet reside on this reserve.

Vital Statistics.—The men number 233, the women 253, and the young people, under twenty-one years of age, 359, making a total population of 845.

Health and Sanitation.—There was no serious epidemic during the year, but too many succumb to pulmonary ailments that evidently lurk in the system of many of these people.

Refuse matter that collects about their habitations during the winter months is regularly collected and burned. Most of these Indians abandon their winter quarters on the advent of spring and take to the teepees.

There is a hospital containing two wards on the reserve. A resident doctor and two nurses are in charge. This hospital is under the auspices of the English Church, but it is open to all Indians.

Dr. Lafferty, of Calgary, supervises the medical work for the department.

Occupations.—Ranching or stock-raising, mining and hauling coal, farming and putting up hay for the near ranchers and various kinds of day labour, are the chief occupations of these Indians. As their cattle now number over 1,800 head, and are yearly increasing, a considerable quantity of hay must be cut and stacked each year for winter use for them, besides a supply for their work horses.

The coal mine was operated for five months last winter, and during that time these Indians mined and hauled over 3,800 tons of coal and earned from this work alone over $5,000. The most easily worked seam lies just south of the Bow river, on the opposite side from the line of railway. The only season that it can be reached is when the ice forms on the river and is used in lieu of a bridge. The nearest point where coal can be loaded on the railway cars is three miles from the mine, and the hauling of the coal from the pit to the cars, and to the Gleichen market, sixteen miles distant, gave a good deal of employment to the Indians and to their teams, besides those employed at mining the coal. These operations were carried on under my management, and I employed a practical miner to directly supervise the mining operations, hauling and the other work in connection therewith. The Indians were paid for hauling by the estimated ton and for mining, some at a rate per yard and others at a rate per day. All were paid weekly in cash and they viewed the operations as of great importance and magnitude and one and all were very sory when, at the end of March, the work had to be abandoned, owing to the fact that the ice bridge was flooded and soon after broken up by the elements.

A surrender of this coal area was made to the department, to be leased on conditions that were embodied in the surrender. It is to be hoped that capitalists will be found who will undertake the operation of this valuable property. It is too vast an undertaking for these Indians to operate successfully. The surrender is amply protected and, to my judgment, particularly favourable to the Indians.

The Indians who took cattle some years ago are now reaping the benefits of their labour. Each season some of them have from one to ten head to sell and yet their holdings are growing in number.

At the beginning of the fiscal year a system was inaugurated here by which members of the band having marketable cattle could, if so disposed, turn a portion of these animals towards providing a supply of fresh meat for their own use. The working of this plan in short is: any Indian has the privilege of turning a beef animal into the reserve abattoir and having his account credited with the quantity of beef so delivered. This individual is allowed to withdraw, weekly, such quantities of meat as will amount by the end of the year to the quantity turned in. The plan has worked admirably, and as the cattle increase in the hands of individual Indians, the greater will be the number who can provide for themselves in a similar manner. It is, so I think, the wedge that may be used to sever gently the able-bodied from that free ration system that has prevailed here since the making of the treaty.

The gratuitous issue of beef for the fiscal year was about 280,000 pounds less than it was four years ago, and this saving was brought about, partially at least, by this self-support system.

Previously to three years ago, the cattle of this reserve were in few hands, but since that time a number accepted heifers under the loan system, i.e., accepted them

on the condition of returning a like number at the expiration of several years, but retaining the increase for their own benefit. These heifers have since had progeny, and in the course of a few years the holders will have matured animals available either for the market or for providing meat for their own requirements. I foresee no reason then why all able-bodied members of this reserve and their dependents cannot be struck from the free ration list, and only the aged, infirm and their dependents, left to the charity of the government.

Buildings.—While no great strides have been made towards the improvement of their buildings, a few better dwellings and stables have been erected and a few others considerably improved.

Education.—The two boarding schools, one under the auspices of the Roman Catholic Church and the other under those of the Anglican Church, are still in operation and doing very good work.

There are yet within the reserve a number of children of school age who have never attended any school, but in our opinion the objections to education are gradually dying out.

Religion.—There are two missions on this reserve, one Roman Catholic, the other Anglican. Both denominations have splendid edifices in which the Indians may worship.

Religious services of both are fairly well attended, but a great majority of the Indians still cling to the religion of their forefathers.

Characteristics.—To get as much as they can for nothing out of every one, and the government in particular, is said to be one of the chief characteristics of the Indian. This begging habit is encouraged by indiscreet people giving them letters of introduction to the public asking for donations. While the begging characteristic may be great, I have found some who view it with disfavour and I think if it were generally discountenanced it would soon die out.

Another characteristic is, and I do not think they differ much in this respect from many of their white brethren either, that they expect their preceptor to be an example of his or her own precepts, or in other words they are great believers in consistency.

Progress.—While being unable to report great progress, I think that I can honestly claim some, and on foundations that to my mind are the ones most lasting and productive of advancement in other lines. I refer particularly to their efforts towards self-support, which is very amply exemplified in the fact that the free food issue is now costing the government about $20,000 less than it did a few years ago. I think, too, that it is a fact that the great majority of the Indians are in a much better financial position than ever before. They are more anxious to work now, and I think it a truism that does not except even an Indian, that money earned is more wisely expended than money acquired without labour. I do not wish to be understood to say that they do not squander any of their gains now, for a great deal of their spendings is yet misdirected; sufficient is, I believe, still ill-spent to cover the cost of the food they get gratuitously. Steps have been taken, I am sure, in the right direction and I trust will continue so until the goal of self-support is finally reached.

Temperance and Morality.—There are, I regret to say, too many addicted to the use of intoxicants of one kind or another. A number have been fined and imprisoned during the year for indulging in decoctions put up and sold under the misleading names of flavouring extracts and medicines, when in reality they contain a much greater per centage of alcohol than does the ordinary whisky. Whenever the vendors of any kind of intoxicants could be convicted, they were prosecuted and a few hundred dollars was collected and sent to the department during the year. While such action apparently does not entirely eradicate the evil, it goes without saying that it tends to diminish it.

These Indians seem to be as moral as most Indians similarly situated.

General Remarks.—While the advancement has not been as marked as one would desire, there have been many encouraging features, and I think the year one of substantial progress.

I have, &c.,

J. A. MARKLE,
Indian Agent.

NORTHWEST TERRITORIES,
ALBERTA—BLOOD AGENCY,
MACLEOD, October 5, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the annual report of this agency, together with agricultural and industrial statistics and inventory of government property for the fiscal year ended June 30, 1904.

Reserve.—The reserve is situated between the Belly and St. Mary's rivers, and runs in a southern direction for about forty miles to within fourteen miles of the international boundary. It contains an area of over 540 square miles, or some 354,000 acres of splendid grazing land. The two rivers form our boundary lines on the north, east and west sides and give an abundant supply of fresh clear water.

There is no timber upon the reserve, but the river bottoms in places have a few cotton-wood trees and a fair growth of willow, which form good cattle-shelters during the cold weather.

It is the largest Indian reserve in the Dominion.

Tribe.—These Indians are a branch of the Blackfoot nation, which comprises the Blackfeet at Gleichen, North Peigans, near Macleod, and the South Peigans, in Montana, U.S.A.

Vital Statistics.—The population of the reserve at the annuity payments in November last, was 1,196, (an increase of 11 over the preceding year), consisting of 294 men, 408 women, 281 boys and 213 girls.

The births numbered 56, the deaths 46 and 1 Indian returned to the reserve.

Health and Sanitation.—The general health of the Indians has been very good during the year, the deaths being less than half what they were last year. As usual among Indians, there are a number afflicted with scrofula and consumption, but every care and precaution is taken with them. They are all instructed to keep their houses well ventilated and whitewashed, also to burn up all refuse, especially in spring. During the summer most of the Indians vacate their houses and live in tents, which is very beneficial to their health. The hospital continues to be of great benefit to the Indians, and is under the care of the medical officer, Dr. Edwards. A great number of the Indians are also treated for minor ailments in the dispensary of the hospital every week. On my visit in June last, I found the hospital in splendid order and spotlessly clean. The Reverend Sisters in charge deserve every credit for their good work here.

Resources and Occupations.—The Indians have as yet not engaged much in farming, this being more of a stock-raising district, so that the principal sources of our Indians' revenue are cattle, cattle-raising, sale of hay and freighting hay, coal and other supplies for the reserve and the neighbouring ranchers.

Some 3,500 tons of hay were put up by the Indians for their own use and about 1,200 tons sold to the police and surrounding settlers at from $4.50 to $7.50 per ton,

according to the distance hauled. A large quantity of coal was also freighted from the Galt mine at Lethbridge to the agency headquarters, to the several police posts and to settlers, at which the Indians earned between $1,500 and $1,600.

An Indian named Black Horses, assisted by his son, is working a coal mine on the banks of St. Mary's river, by which he makes a good living. The coal is apparently of the same vein as the Galt mine at Lethbridge, which is about fifteen miles from Black Horses' mine.

Our Indians also earned $2,182.25 for topping and hauling beets for the Knight Sugar Company, Raymond.

Stock.—Stock-raising is the principal pursuit of our Indians and their herds are growing rapidly. By our records I find that they began stock-raising with the assistance of the department some ten years ago, and their herd now consists of nearly 5,000 head. Nearly 900 calves were branded this summer. The Indians are now realizing the great value of this industry, and this year there were a great many applications for stock from those who had hitherto not asked for any. The department very kindly sent in over 900 head of young heifers in June, which were mostly issued on loan to those Indians who wished to begin cattle-raising, and the remainder were issued to those who had had one or two issued to them in previous years, so that now every Indian who expressed a desire to start in the stock business has had breeding stock loaned to him.

There are, of course, some of them who have not yet realized the benefit of owning cattle, but they will no doubt soon fall into line.

Thirty-nine pure-bred shorthorn and Hereford bulls were sent in by the department, so that now we have 100 fine pure-bred bulls on the reserve. We have also six good stallions, which were supplied by the department to improve the breed of the Indian ponies. A great many of the Indians have fine teams of horses, very different in breed and build from the cayuse which was formerly their chief possession.

Our Indians supplied the department with over $11,000 worth of beef last winter, nearly all being prime three-year-old steers. The barren cows were also cleared out of the herd and killed for beef.

The Indians have still a large number of ponies, which they keep selling from time to time, realizing a good addition to their income.

Buildings.—Many of the Indians have much improved their dwelling-houses by putting in new floors and shingle roofs.

A new house was erected for the herder and a large cattle-shed was built in one of the agency pastures for shelter for the bulls and beef steers.

An addition of two rooms was built to the agent's house, which much improves it in appearance and convenience.

A commodious and comfortable house was built for the use of the resident medical officer, Dr. Edwards.

All the agency buildings are in process of being painted white, which they needed very much, as it is many years since they were last painted.

Several of the Indians have done a large amount of fencing during the year, an area of 500 acres having been inclosed in the various fields and corrals with substantial fences of posts and barb wire.

Implements.—The Indians have purchased during the year 12 mowers, 14 rakes, 4 ploughs, 21 wagons, 42 sets of harness, 28 saddles and 6 democrat wagons, to be paid for out of their earnings. They are thus getting together a good working outfit.

Education and Religion.—There are two boarding schools and one day school belonging to this reserve.

The Roman Catholic boarding school has an attendance of 33 pupils and the Church of England boarding school an average of 47 pupils in residence. The Church of England day school at Bull Horns has between 20 and 30 pupils on the register, but the attendance fluctuates very much, as it is exceedingly difficult to get

these pupils to attend regularly day by day, their parents taking very little interest in the matter.

Pupils from this reserve are in attendance at the Calgary and Dunbow industrial schools.

The large majority of the Indians are pagans ; some few attend one of the two churches here, where services are regularly held, together with the pupils of the schools.

Characteristics and Progress.—There is no reason to complain of the progress of these Indians. The majority are good workers, although as in every community, both civilized and uncivilized, there are indolent ones to be found, who, however much they are urged, will make little or no effort towards earning money and bettering their condition.

Many of our Indians are gathering together good herds of cattle, so much so that in March last a new movement was begun here, that of making the cattle-owners who had sufficient stock provide beef out of their own herds for the support of themselves and families. There are 19 families, consisting of 76 persons, who are doing this wholly or in part.

When their beef animals are killed, a certain proportion of the beef sufficient for their requirements is credited to them and entered in a pass-book, which is given to each owner. Each ration-day they draw their usual ration of beef, which is entered to their debit in their pass-books, and so each Indian knows how much beef he had, how much he draws each ration-day and how much is still left to his credit.

Preference is also given to these Indians who are trying to become self-supporting, when we have any work to be done whereby they can earn money. The other Indians, therefore, see that there is a great advantage in it in many ways, and will no doubt in a short time, when able, follow the example. Of course it is a work of time to educate the Indian in these ideas of self-betterment.

Our Indians are becoming alive to the possibilities of grain-growing. During past years it seems to have been the idea that this part of the country was only suited to stock-raising. In the past two or three years many white settlers have raised good crops of grain, and now it is a topic of conversation among the Indians that they should try to do likewise. This year they broke about 25 acres of land, which were sown with potatoes. If it is found that grain can be grown successfully, they talk about building a grist-mill for themselves and providing their own flour.

Temperance and Morality.—Their morals are, I think, as good as any of the other bands of Indians that I know, and there is not much to complain of in this direction. In spite of the strict law, some of them manage to procure intoxicating liquor. Four Indians were convicted of being drunk on the reserve and sentenced to one month each with hard labour, without the option of a fine. A fine is little or no punishment to an Indian ; he pays it and then forgets, but he decidedly remembers a term of imprisonment.

General Remarks.—We had a very favourable winter for stock and our casualties were very small. We had no severe storm such as occurred in May, 1903. There has been a general improvement towards the betterment of the Indian. There has been a substantial increase in their stock and working outfits, which thus increases their earning powers. I think the agent and staff are to be congratulated upon their work in assisting the Indians towards this end.

I regret to say that at this time of writing our agent and his wife, Mr. and Mrs. R. N. Wilson, are in Macleod hospital, suffering from typhoid fever. I am glad to state they are now on the way towards recovery. Mr. Wilson was, therefore, unable to write his annual report, and, as I was only transferred from Crooked Lake agency to this agency last December, I must ask indulgence for any shortcomings there may be in this report.

I have, &c.,

JNO. W. JOWETT,

Acting Indian Agent.

NORTHWEST TERRITORIES,
SASKATCHEWAN—CARLTON AGENCY,
MISTAWASIS, September 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the annual report of this agency for the year ended June 30, 1904.

WILLIAM TWATT'S BAND, NO. 101.

Reserve.—This reserve lies to the north of, and 20 miles distant, from the town of Prince Albert. It contains some 20,000 acres. Its northern portion is heavily timbered with spruce and poplar, while the southern part of the reserve is suitable for agricultural purposes.

Tribe.—These Indians are Crees.

Vital Statistics.—The population consists of 36 men, 47 women, 43 boys and 19 girls, a total of 145.

Health and Sanitation.—The health of these Indians is generally good. As for sanitary precautions, there is no trouble, as they now fully understand the necessity for them.

Resources and Occupations.—The members of this band depend to some extent on hunting and fishing; they are good workers and earn very considerable in the lumber woods and at log-driving; they farm but little in consequence.

Buildings.—A number of these Indians have good shingle-roofed houses, which are very comfortable; while others are contented with flat-roofed shanties.

Stock.—They have a fine herd of cattle, of which they take fair care. They have no surplus stock this year beyond what beef will be required on the reserve.

Education.—There is a day school on the reserve, at which the attendance is fair. Some four or five pupils also attend Emmanuel College.

Progress.—These Indians are progressing slowly, but, with the advantages they have, should do much better.

Religion.—Those who are not pagans attend the Church of England service.

Temperance and Morality.—The members of this band, while working in the lumber camps and at log-driving, come a great deal in contact with the white man and liquor; the temptation is very great, yet they behave fairly well. Their morality is not below the average.

PETAQUAKEY'S BAND, NO. 102.

Reserve.—This reserve has an area of forty-two square miles northwest of Carlton; the soil is rich and suitable for mixed farming.

Tribe.—These Indians belong to the Cree nation.

Vital Statistics.—The population consists of 18 men, 23 women, 25 boys and 22 girls, a total of 88 souls.

Health and Sanitation.—The health of this band has been very good. The houses are kept very clean, and sanitary precautions are well carried out.

Resources and Occupations.—Farming and cattle-raising constitute the chief occupation of the band, little or no hunting being done.

Buildings.—All the houses are substantial, and some are very comfortable.

Stock.—The cattle of this reserve are of a good class and are well cared for.

Farm Implements.—These Indians are well supplied with all implements that are required. These are purchased in most cases from their own earnings.

Education.—There is no day school on this reserve, the children are sent at an early age to the Duck Lake boarding school.

Religion.—These Indians are Roman Catholics, they have a church on the reserve, their spiritual welfare being looked after by the Rev. Father Paquette, who, although at present in poor health, takes great interest in these Indians.

Progress.—They are doing very well, are good workers, and should be in a very short time self-supporting.

Temperance and Morality.—The members of this band are very temperate and moral.

MISTAWASIS' BAND, NO. 103.

Reserve.—This reserve is situated twenty-five miles north of Carlton, and has an area of 77 square miles. It is well watered, hay is plentiful, and the grazing is magnificent.

Tribe.—The Indians of this band are Crees.

Vital Statistics.—The population consists of 35 men, 40 women, 26 boys and 25 girls, a total of 126 souls.

Health and Sanitation.—The health of these Indians has been very good, they are intelligent and as a rule carry out the instructions given them by the medical attendant; they also observe sanitary measures.

Resources and Occupations.—Farming and stock-raising are the chief occupations on this reserve; there are but few hunters.

Buildings.—The majority of the Indians of this reserve have good comfortable shingle-roofed buildings.

Stock.—The cattle are of a good class, the Indians are poor feeders and it is difficult to get them to put up sufficient fodder; the majority of them were short of hay last winter, consequently the cattle went to the grass this spring in poor condition.

Implements.—These Indians have all the implements they require for farming purposes.

Religion.—There are several families that belong to the Roman Catholic faith, but the majority profess to belong to the Presbyterian Church; they attend service well. The Rev. Mr. Moore is the incumbent and is doing good work.

Education.—There is a day school on the reserve; the attendance is very good. They have an excellent teacher in Mrs. Moore; under her tuition the pupils are making rapid progress. Nine children are at present attending the Regina industrial and Duck Lake boarding schools.

Characteristics and Progress.—Some of these Indians are doing fairly well; they have, however, been too much indulged and lean too much on the ration-house, but if properly handled, there is no reason why they should not become more thrifty.

Temperance and Morality.—Although I have been here but a short time, I have learned that the Indians of this band are neither as temperate or moral as they should be.

AHTAHKAKOOP'S BAND, NO. 104.

Reserve.—This reserve lies 18 miles north of Mistawasis, and contains an area of 67 square miles, much of which is heavily wooded, but sufficient land is to be found for the raising of grain.

Tribe.—These Indians belong to the Cree nation.

Vital Statistics.—The population consists of 42 men, 58 women, 46 boys and 56 girls, a total of 202 souls.

Health and Sanitation.—The general health of this band has been good, they keep their houses fairly clean, and follow the instructions given them as to sanitary measures very well.

Resources and Occupations.—Grain-growing and stock-raising are their principal means of support, which they supplement to some extent with that of hunting.

Buildings.—Most of the houses are very good, shingle roof log buildings, some of which are very creditable and will compare very favourably with the best of log houses put up by white settlers.

Stock.—They have a fine herd of cattle, which wintered fairly well ; they also own some good horses.

Education.—There is a day school on the reserve, with a fair attendance ; the progress made, however, is not encouraging. About twenty children attend the industrial schools.

Religion.—The majority of the band are members of the Church of England, their spiritual welfare being looked after by the Rev. Mr. Cook.

Progress.—A number of the Indians are making fair progress and are industrious ; most of them are young and able-bodied, and, if properly handled, should soon be on the way to becoming self-supporting.

Temperance and Morality.—They are very moral, but some of them will drink whenever they can procure any whisky.

KOPWAYAWAKENUM'S BAND, NO. 105.

Reserve.—The reserve of this band is situated on the northern shore of Meadow lake, about one hundred and twenty miles north of the town of Battleford, and has an area of fourteen square miles. The Meadow river flows through the eastern portion of the reserve, which as a whole contains excellent soil, plenty of timber and good water, and possesses in its waters an abundance of excellent fish. On the reserve there is one of the largest hay meadows in the Territories.

Tribe.—These Indians are of the Cree nation.

Vital Statistics.—The population consists of 15 men, 23 women, 23 boys and 20 girls, a total of 81 souls.

Health and Sanitation.—The health of this band has been very good, fair attention is paid to sanitary measures.

Resources and Occupations.—These Indians are hunters ; they put in a few gardens, but that is all, they are too far from a market or mill to go into grain-raising, they derive a good living from hunting and fishing.

Buildings.—There are but few buildings on the reserve, they are of the poorest class and are very seldom occupied, the Indians being but very little on the reserve.

Stock.—They have about eighteen or twenty head of cattle and twenty ponies.

Implements.—They have but few farm implements.

Education.—There is a day school on the reserve, but, owing to the Indians being continually away hunting, the attendance is poor and progress slow.

Religion.—These Indians are Roman Catholics, their spiritual welfare being looked after by the Rev. Father Testo of Green Lake.

Characteristics and Progress.—They make a good living by hunting and fishing, they may in time be prosperous cattle-raisers ; but beyond their gardens, agricultural pursuits cannot be attempted for want of a market. They are industrious and law-abiding, and very clean and neat in their appearance.

Temperance and Morality.—They are temperate and moral.

KENEMOTAYOO'S BAND, NO. 118.

Reserve.—This reserve is located along the Green Lake trail and lies twelve miles north of Sandy lake. It has an area of forty-six square miles.

Tribe.—These Indians are of the Cree nation.

Vital Statistics.—The total population of the Big River and Pelican Lake sections of Kenemotayoo's band is 34 men, 44 women, 48 boys and 51 girls, a total of 177 souls.

Health and Sanitation.—The health of these bands has been very good, sanitary precautions are fairly well carried out.

Resources and Occupations.—These bands depend for a livelihood principally on hunting and fishing; they have been farming for some two or three years, but the reserve is not adapted to the raising of grain, it being too light; after being cropped one or two years, the soil becomes exhausted; the raising of grain successfully on this reserve is out of the question.

Buildings.—Their houses are very poor, but they intend building better ones, and a number of logs have been got out for that purpose.

Stock.—Their herd is not large, although a good class of cattle.

Implements.—They have been furnished with such implements as they require.

Education.—The day school on this reserve is well attended and good progress has been made.

Religion.—But little progress has been made in this direction, but the efforts made by the missions of both the Roman Catholic and Anglican Churches may in time produce good results.

Progress.—They are fair workers, obedient, and are slowly advancing; an earnest and persistent effort on the part of the agent and farmer will, I have no doubt, be rewarded.

Temperance and Morality.—They are temperate and moral.

WAHSPATON'S BAND (SIOUX), NO. 94A.

Reserve.—The reserve contains 2,400 acres, and is 9 miles northwest of the town of Prince Albert; the soil is light and sandy; about three-fourths of the reserve is covered with brush, scrub, jack pine and poplar.

Tribe.—These Indians are of the Sioux nation.

Vital Statistics.—The band numbers about 100 souls, but only some seven families dwell on the reserve, the remainder live near Prince Albert; exact details are not available.

Health and Sanitation.—The health of the band has been good; sanitary precautions are well carried out.

Resources and Occupations.—These Indians have about two acres in gardens and about 30 acres in oats and barley. Their chief support is derived from the sale of roots, berries, wood and hay, to the convenient market at Prince Albert.

Buildings.—Their buildings are substantial and comfortable, and are neatly kept.

Stock.—Their cattle and ponies, although small, are of a good class and are well looked after.

Implements.—The supply on hand is adequate, and they are very careful of them.

Education.—There is a day school on the reserve, but the attendance is very small and progress slow.

Religion.—These Indians are adherents of the Presbyterian Church, and divine services are held every Sunday in their native tongue by the missionary.

Progress.—They are very industrious and are steadily advancing.

Temperance and Morality.—In these respects they compare very favourably with the other bands.

GENERAL REMARKS.

From the returns on file in this office, I find that this agency has been fairly successful during the past year, fur and game of all kinds have been plentiful, the crops

were fairly good, although the average yield was small, the agency mill ground over 1,000 sacks of flour for the Indians, besides which some grain was sold at Duck Lake and to passing freighters.

Some 1,500 logs were taken out by the Indians at Sandy Lake reserve, and were converted into lumber.

It is satisfactory to state that the rules laid down by the department are strictly adhered to.

I have, &c.,

J. H. PRICE,

Acting Indian Agent.

NORTHWEST TERRITORIES,
EASTERN ASSINIBOIA—CROOKED LAKE AGENCY,
Near BROADVIEW, August 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my first annual report from this agency, with agricultural and industrial statistics, together with the inventory of government property under my charge to June 30, 1904.

I have had temporary charge of this agency since April 20, 1904, the date that the late Mr. Magnus Begg, the former agent, died.

Agency Office.—The agency buildings are situated on the northeast quarter of section 4, township 18, range 5, west of the 2nd meridian, about 9 miles northwest of the town of Broadview, on the main line of the Canadian Pacific railway.

Reserves.—The reserves are as follows : Ochapowace, No. 71; Kahkewistahaw, No. 72 and 72A; Cowessess, No. 73; Sakimay and Shesheep, No. 74 and 74A, and Little Bone reserve, No. 73A, lying north of the Canadian Pacific railway, and extending from Whitewood, on the east, to Grenfell, on the west. The total area of these reserves is 181,676 acres. The reserves are all well watered, being broken up by sloughs and creeks, the latter emptying themselves into the Qu'Appelle river.

Most of the soil is sandy and clay loam. The country in general is rolling and parts of it are very picturesque.

OCHAPOWACE BAND, NO. 71.

Reserve.—This reserve lies to the east of the agency headquarters and is northwest of Whitewood. It contains 52,864 acres.

Tribe.—These Indians are Crees.

Vital Statistics.—There are on this reserve 34 men, 30 women and 40 children, making a total of 104. There were seven deaths on this reserve during the year.

Health and Sanitation.—There are a number of old people on this reserve, but on the whole the health has been good. Dr. J. R. Bird, the medical attendant, has been very attentive to his duties.

Education.—The children of this reserve attend the Round Lake boarding school, which is conducted by the Rev. H. McKay.

Religion.—A few of these Indians are Presbyterians, under Rev. H. McKay's care, the remainder being mostly Roman Catholics and pagans.

KAKEWISTAHAW BAND, NO. 72 AND 72A.

Reserve.—This reserve lies north of Broadview ; it contains an area of 46,816 acres.

Tribe.—These Indians are Crees.

Vital Statistics.—This band has a population of 98, consisting of 31 men, 33 women and 34 children. There were 5 births on this reserve.

Health and Sanitation.—The general health of these Indians has been good, except for a few cases of scrofula.

Education.—Six of these children are attending the Qu'Appelle industrial school, 2 at Cowessess boarding school, and 13 at Round Lake boarding school.

Religion.—The majority of these Indians who are Roman Catholics attend service at the mission in Qu'Appelle under Rev. S. Perrault, and a few Presbyterians attend services held by the Rev. H. McKay.

COWESSESS BAND, NO. 73.

Reserve.—This reserve lies to the west of Kahkewistahaw reserve and north of the Canadian Pacific railway between Broadview and Grenfell. Its area is 49,920 acres.

Tribe.—These Indians are mostly half-breeds, the remainder being Crees and Saulteaux.

Vital Statistics.—This band has a population of 190, consisting of 41 men, 55 women and 94 children. During the year there have been 7 births and 6 deaths.

Health.—The health of the members of this band has been fairly good.

Education.—Seventeen of these children are attending the Qu'Appelle industrial school, 2 at Regina industrial school and 19 at Cowessess boarding school.

Religion.—The majority of this band are half-breeds and attend services at the Roman Catholic mission, which is on the reserve, in charge of Rev. S. Perrault.

SAKIMAY BAND, NO. 74.

Reserve.—This reserve is on the west side of the north half of Cowessess reserve and bounded on the north by the Qu'Appelle valley, a small portion of the reserve (No. 74A) being on the north side of the river.

The area of this reserve is 25,208 acres. These Indians have the Leech Lake (No. 73A) reserve 40 miles north containing 6,976 acres.

Tribe.—These Indians are mostly Saulteaux, but a few are Crees.

Vital Statistics.—This band has a population of 166 ; there are 35 men, 41 women and 90 children. There were 10 deaths in this band during the year.

Health.—The health of the majority of these Indians has been fairly good ; there has been no epidemic of any kind.

Education.—Six of these children attend the Qu'Appelle industrial school, 2 at Cowessess boarding school and 3 at Round Lake boarding school.

Religion.—A few of these Indians attend service held by Rev. H. McKay and the remainder are nearly all pagans.

Occupations.—Mixed farming is carried on by most of these Indians with a fair amount of success. They also make quite a little extra by selling wood and hay in Broadview and Whitewood and also by digging senega-root, for which they obtain a good price.

Stock.—The Indians of these different reserves have some very good cattle and cut sufficient hay to carry them safely through the winter. They have also quite a number of good horses.

Farm Implements.—The Indians of these reserves are pretty well supplied with ploughs, harrows and other farm implements. Some of the more advanced Indians

have purchased some of the later improved implements, which are their own property.

Buildings.—The dwelling-houses and stables on these different reserves are not very good. Improvements are going on all the time whenever they have the money to spend, but building material costs a lot of money and no debt for anything is encouraged.

Characteristics and Progress.—Quite a number of these Indians are progressing. They like money and they know they have to work for it and also have realized that it comes by raising crops and raising cattle for market.

Some of them raised over a thousand bushels of grain and they were the ones that were well off and a large number are following their example.

Temperance and Morality.—The character of these Indans has improved, although I may say their temperance is not as good as their morality; but on the whole they have conducted themselves very well.

I have, &c.,

J. A. SUTHERLAND,

Acting Indian Agent.

NORTHWEST TERRITORIES,
SASKATCHEWAN—DUCK LAKE AGENCY,
DUCK LAKE, September 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report of this agency for the fiscal year ended June 30, 1904.

ONE ARROW'S BAND, NO. 95.

Reserve.—The reserve of this band is located to the east of the south branch of the Saskatchewan river, about 13 miles from the agency headquarters, and has an area of 16 square miles. It is considerably broken up with small lakes and sloughs. The soil is sandy and cannot be depended on during dry seasons.

Tribe.—The Indians of this band are Plain Crees.

Vital Statistics.—The number of souls in this band is 103, composed of 22 men, 29 women, 36 boys and 16 girls. There have been 4 births and 3 deaths, 1 absent and 2 returned to the band, making an increase of 2.

Health and Sanitation.—The health of this band has been very good. They are attentive to sanitary instructions and keep their houses fairly clean.

Resources and Occupations.—Farming and stock-raising occupy some of their time, but the older men have never seriously taken hold; still, what from sale of cattle and produce, along with gathering roots in summer and hunting in winter, they make a good living, receiving little assistance from the department.

Buildings.—Their buildings are not as good as might be, but improvement along that line is going on.

Stock.—Their stock of cattle wintered very well and without loss, but they do not take sufficient interest in the increase.

Religion.—These Indians belong to the Roman Catholic Church.

Education.—There is no day school on this reserve. the children being sent to the Duck Lake boarding school.

Characteristics and Progress.—Having got to a stage that procures them a living they do not show much desire to go beyond this.

Temperance and Morality.—These Indians are moral and fairly temperate.

OKEMASIS AND BEARDY'S BANDS, NOS. 96 AND 97.

Reserves.—The reserves for these bands border chiefly on Duck lake, and its hay marshes, being about three miles from the town of Duck Lake, which, having its flour mill and good market, adds considerably to the advantages these bands have. The total area is 44 square miles. On Okemasis' and part of Beardy's, the soil is sandy and poor, but the remainder is very good on the south and west sides; these sections the Indians are now going to, for cultivation, with favourable results.

Tribe.—These two bands are Plain Crees.

Vital Statistics.—The number in Okemasis' band is 28, composed of 7 men, 10 women, 4 boys and 7 girls. There were 2 births and no deaths; 1 joined and 2 left the band, making an increase of 1.

In Beardy's band there are 144 souls, composed of 32 men, 38 women, 32 boys and 42 girls. There have been 7 births and 2 deaths, 5 have returned and 1 left the band, making an increase of 9.

Health and Sanitation.—The health of these Indians has been good, and they pay attention to sanitary measures.

Resources and Occupations.—Farming and stock-raising occupy most of their time. The younger men, having taken hold with a will, are fast making themselves self-supporting and independent. Having excellent hay-grounds on these reserves and being near the village of Duck Lake, they have always a surplus of hay on hand, for which they find a ready cash market.

Buildings.—Some have good shingle-roofed houses; others not so good; but the general trend is towards a better order of things.

Stock.—They own a fine herd of cattle, of which they take good care.

Religion.—Most of these Indians belong to the Roman Catholic Church, a few to the Presbyterian Church.

Education.—There is no day school on this reserve. The children belonging to Roman Catholic parents go to the Duck Lake boarding school, while those who belong to the Presbyterians go to the Regina industrial school.

Temperance and Morality.—They are, for Indians, moral, and considering their proximity to the village of Duck Lake, are fairly temperate.

JOHN SMITH'S BAND, NO. 99.

Reserve.—The reserve for this band lies on both sides of the south branch of the Saskatchewan river, 14 miles from the town of Prince Albert, and consists of 37 square miles. The soil is all that could be desired, with plenty of sloughs and upland hay, also having a large quantity of poplar timber for building purposes.

Tribe.—This band consists of half-breeds and Swampy Crees.

Vital Statistics.—John Smith's band consists of 143 souls, composed of 40 men, 36 women, 32 boys and 35 girls. There have been 8 births and 3 deaths; 5 left and 10 returned to the band, making an increase of 10.

Health and Sanitation.—The general health of this band has been good. They keep their houses clean and attend to sanitary regulations.

Resources and Occupations.—Grain-growing and stock-raising occupy most of their time, while they supplement this by hunting.

Buildings.—In most cases the buildings are good.

Stock.—These Indians have a fine herd of over 300 cattle.

Implements.—These Indians have all the implements they require for their work

Education.—There is a day school on this reserve, which has a fair attendance.

Religion.—The Indians of this band belong to the Church of England.
Progress.—These Indians may be said to be self-supporting.
Temperance and Morality.—They are moral and fairly temperate.

JAMES SMITH'S BAND, NO. 100.

Reserve.—This reserve is situated on the Big Saskatchewan river, near Fort à la Corne, and contains a fraction over 56 square miles. There is a strip of it on the north side, where the land is poor and sandy; otherwise the soil on the rest of the reserve is of very good quality, interspersed with small lakes, sloughs and hay meadows, but in all, a splendid property.

Tribe.—These Indians are Plain and Swampy Crees.

Vital Statistics.—James Smith's band has 220 souls composed of 60 men, 55 women, 51 boys and 54 girls. There have been 13 births and 5 deaths, 1 has left and 2 returned to the band, making an increase of 9.

Health and Sanitation.—The general health of this band has been fairly good. They keep their houses clean and attend to sanitary regulations.

Buildings.—On this reserve nearly all have good shingle-roofed houses; 6 new ones having been built during the past year.

Stock.—These Indians have a nice herd of cattle; but from various reasons in the past they have not increased as they should have done. An improvement in this line may now be looked for, as they have had two large pastures made, where constant care during summer and fall can be given the animals.

Implements.—These Indians were rather short of implements until this season, They have now been supplied with everything necessary in that line; payment for the same being made from funds in hands of the department belonging to the band from the sale of reserve lands.

Education.—There are two day schools on this reserve, both of which are fairly well attended.

Religion.—The Indians of this band belong to the Church of England.
Progress.—These Indians are making fair progress.
Temperance and Morality.—They are moral and temperate.

GENERAL REMARKS.

During the past year the Indians of this agency met with a fair measure of success in farming and stock-raising, while the plentifulness of both fur and game materially assisted them in making a comfortable living. A slow but steady improvement is going on in all the reserves; which at no distant date will leave them self-supporting.

I have, &c.,
J. MACARTHUR,
Indian Agent.

NORTHWEST TERRITORIES,
ALBERTA—EDMONTON AGENCY,
EDMONTON, July 27, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on this agency for the fiscal year ended June 30, 1904, together with the statistical return and an inventory of the government property under my charge at that date.

The affairs of five reserves are managed at this agency, and while each of them will be dealt with separately in this report, a general reference to such matters as are common to all will save repetition.

If we leave Michel's band out of the survey, the remaining Indians, although belonging to two different tribes, may be treated of here, as one people, continual intercourse between the bands, similarity of pursuits and of environment having made them so. They are hunters and trappers by choice and by inherited tendency and become farmers only through official persuasion or pressure. As long, therefore, as their chosen avocations assure them prosperity, the less esteemed methods of obtaining a livelihood which we are asking them to adopt will be avoided.

An abundant catch of fur, with high prices for the product, made this a prosperous year for the Indians; but various causes intervened to hinder their progress. The prophecies of an abundant harvest, based on the conditions of the early season of 1903, were destined to remain unfulfilled.

The rain which set in at the beginning of haying delayed work and damaged the hay to an extent that resulted in quite a serious mortality among the cattle which had to subsist the winter on it. This wet weather continuing into the harvest, prolonged the growing season till frost overtook the crop and caused additional loss in this respect. It is gratifying to note that, in spite of these reverses there are no evidences of discouragement among the Indians, the area now under crop being somewhat more than in 1903.

The health of the Indians has been good. The usual sanitary measures are inculcated and generally well observed. The visits of the medical officer have been regularly made and professional aid ungrudgingly given to all who sought it. To avoid any risk of contagion from small-pox, which was said to exist in the vicinity, the Indians were confined, as far as possible, to their reserves, and the protection of vaccination was extended to all the bands. Neither this nor any other contagious disease has appeared among them during the year.

In the early part of last winter gossip was current of excessive drinking among the Indians and, on the Mounted Police being appealed to, the authorities were good enough to direct an investigation. The duty was assigned to Inspector Belcher, who made a tour of all the reserves. While Inspector Belcher was honestly anxious to attain the end aimed at by the investigation, all the information he was able to elicit was, that those who disseminated the reports were more anxious to publish than willing to aid in suppressing the evil by giving any information whereby it might be effectively dealt with. It is undeniable that drinking exists, but I have no reason to believe it is increasing.

ENOCH'S BAND, NO. 135.

Reserve.—The reserve is situated about eight miles west of Edmonton. It contains 19,520 acres of land. It is well supplied with timber of good quality for all purposes, is well watered and produces natural hay in profusion both for pasture in summer and fodder for winter. There are large areas of open country which require little, if any, clearing to render them fit for the plough. All the natural requirements for successful diversified farming appear to be assembled here.

Tribe.—The Indians of this band are Crees.

Vital Statistics.—At the last annuity payments held in October, 1903, 123 persons were paid, of whom 33 were men, 41 women, 26 boys and 23 girls. The deaths for the year were 9 and the births were 5.

Health and Sanitation.—The health of the band has been good ; medical attendance has been satisfactory and sanitation well attended to.

Occupations.—The principal occupation of this band is mixed farming. Besides the returns from sales of hay, grain and beef, they make considerable money from the sale of dry timber for fence-posts, fuel and such purposes. They operate a saw-mill

of their own, but, being required to provide themselves with adequate buildings before disposing of any considerable part of the output, their income from this source is not much as yet. The construction of a telephone line from Edmonton to the agency office sent nearly $400 their way for poles delivered along the route last winter. Money is also earned by the women selling berries and charring, but none of them go into domestic service. A few of the young men earn wages in the lumber woods and running the river, but none hire out with farmers.

Stock.—The provision of hay made was, in respect of quantity, ample, but as has been said elsewhere, the quality was bad. Outdoor grazing having continued till after the sources of water-supply had frozen up in the early winter and an icy condition of the ground prevailing at the same time, stock went into winter quarters in no very good condition to withstand the ill effects of bad fodder. Unauthorized killing and selling are not increasing and such cases as occur are confined to old offenders. Four of the pedigreed shorthorn bulls purchased for the agency this year have been assigned for service to this band. Hitherto these people have been indifferent to the possession of cattle, but the closing of the ration-house will, doubtless, stimulate their interest.

Buildings.—In this direction there is quite an awakening, due largely to their ability to secure the material by their own efforts from their saw-mill. Three dwellings are well on the way to completion and the material is on the ground for five more to be built this season. One frame and two log stables will also be built by winter. The class of buildings being erected is a great improvement on the past. All will have shingled roofs and boarded gables, with lumber floors. They will be well lighted and more commodious than has been common.

Farm Implements.—The extensive purchases made from the funds of the band give them an ample equipment of modern and approved implements and machinery.

Education.—There is no day school on the reserve. The children are sent to such of the boarding schools as their parents may elect.

Religion.—The majority of the band are Roman Catholics ministered to by a resident priest. The minority are Methodists without a missionary at present.

Characteristics and Progress.—Notwithstanding the buffeting they endured at all points during the year under review, they have uttered no complaint and have taken up the work of the present, undiscouraged and undismayed. They sawed about one hundred thousand feet of lumber at their mill last winter and with the product are busy building, while carrying on their farm work as extensively as in the past. Only those who by reason of old age or other infirmities, would be considered a public charge in any community will for the coming year be rationed, and those cut off, appear to face the prospect with equanimity. Hunting is practically a thing of the past and progress may be expected from year to year.

Temperance and Morality.—Measured by the commonly accepted standards, they would not rank high in these virtues, but, compared with Indians in similar circumstances, their standing is fair. I may say that, within my own knowledge, there have been no accessions to the ranks of the intemperate within the year.

MICHEL'S BAND, NO. 132.

Reserve.—This reserve lies about seven miles west of St. Albert. The present area of the reserve is 17, 834¾ acres ; 7,665¾ acres having been surrendered to the Crown within the year, to be sold for the benefit of the band. What remains to the band is good agricultural land, carrying sufficient timber for all their needs.

Tribe.—The band is an intermixture of Iroquois, Cree and French blood, with the appearance and characteristics of half-breeds.

Vital Statistics.—At the annuity payments in October, 1903, the number paid, as of this band, was 93, made up of 16 men, 20 women, 26 boys and 31 girls. No deaths had occurred during the year and the band was increased by 5 births.

Health and Sanitation.—Although they live under conditions of cleanliness and sanitation which compare favourably with those of their white neighbours, consumption has fastened on them and claimed two of their young men this spring as victims. A few cases of tubercular and bronchial troubles had the medical officer's attention, apart from which their health has been good.

Occupations.—Mixed farming is their principal calling. They dispose of a good deal of dry timber for fuel, fencing and such purposes. They earn money freighting in winter, and their young men engage with surveyors, lumbermen and others for wages. Some of the old men still follow the chase, perhaps for pleasure as much as profit, and this year did well at it financially.

Buildings.—Their dwelling-houses, in general, are good and tidily kept. The stables and outbuildings are fair and are being improved.

Stock.—The care they bestow on their stock is commendable, but improvement in quality was greatly to be desired. The remedy has been provided by the issue of two pedigreed bulls for service in their herds. They suffered, in common with other reserves, from untoward effects of the weather.

Education and Religion.—The ability to read and write is general among the young people and the desire of the elders to have the children taught is quite marked. The boarding school at St. Albert affords them every facility to this end. In religion they are Roman Catholics.

Temperance and Morality.—The practice of these virtues is abreast of their standing in other respects.

Progress.—They have been seriously hindered by want of horses with which to farm. This and a scarcity of implements, it is hoped, will be overcome when the proceeds of the sale of their land become available. Although these causes are making apparent a little stagnation for the time being, the general tone of the band is progressive. Pigs and poultry are seen at most of the places, cows are milked, implements sheltered and a general air of thrift prevails.

ALEXANDER'S BAND, NO. 134.

Reserve.—This reserve lies four miles north of Michel's and contains 26,240 acres of land, about half of which is covered with timber.

Tribe.—With the exception of a few Stonies the members of the band are Crees.

Vital Statistics.—At the annuity payments in October, 1903, the number paid was 182, made up of 48 men, 55 women, 43 boys and 36 girls; 8 had died during the year and 6 births had occurred.

Health and Sanitation.—The health of the band has been good. The sanitary measures are well observed and the doctor's visits are regularly made.

Occupations.—Hunting and fishing are their main dependence. They are fairly supplied with cattle, and farm but little. Operating their saw-mill gives them employment and the product rewards them for their labour.

Buildings.—The character and condition of these have been a reproach to the band in the past, but the diligence and vim with which they went to work to stock and operate the saw-mill warrants the belief that the stigma will soon be removed.

Stock.—The Indians had made ample provision of forage for the winter, but the feeding of damaged hay and accidents arising from the icy conditions of the early winter made inroads on the herd and adversely affected the prospective increase through injuries to the mothers. A number of new stables will be built before winter and beneficial results are looked for. Unauthorized killing is still too common and, though carefully watched, is hard to prevent. It is regarded by the Indian as coming in the same category as infractions of the game laws. Three of the pedigreed shorthorn bulls were sent for the improvement of the stock here.

Education and Religion.—These Indians are averse to sending the children to boarding schools and are asking for a day school. As regularity of attendance and

submission to restraint are requisite to success in teaching Indians, the nomadic habits of the band offer no warrant that these conditions will be fulfilled, and the value of the experiment would be doubtful. They belong to the Roman Catholic Church and have a resident missionary of that faith.

Progress.—Under the guidance of the farmer, Mr. Bard, who enjoys their confidence and has them well in hand, they show some progress. They bought a sawmill and are paying for it by their own exertions. One hundred thousand feet of lumber were sawn this winter and half of it will be used to better their buildings. The returns from farming are precarious and the occupation itself is distasteful. Markets for produce are distant and the road to them good only at the time fur is at its best. The inducements to persevere are, therefore, slight, but on the whole they are going as far and as fast as can be reasonably expected. With cattle they do better, for hay is put up at a season when the call of the wild is not so alluring and they arrange among themselves to assist each other in feeding during winter so that all the owners do not have to stay at home.

JOSEPH'S BAND, NO. 133.

Reserve.—The reserve is situated on the shore of Lake Ste. Anne, near the village of that name. It contains 14,720 acres of land almost wholly covered with timber.

Tribe.—Excepting a few Crees, the Indians of the reserve are Stonies.

Vital Statistics.—In October, 1903, 142 members of this band were paid, of whom 28 were men, 36 women, 40 boys and 38 girls. The births reported for the year were 7 and the deaths were 6.

Health and Sanitation.—Leading an open air life, their health is good. The doctor visits the reserve regularly and attends all who need his aid.

Occupations.—Although the band, among them, keep some 20 head of cattle, the members look to hunting and fishing for their living.

In the latter callings they are expert and in consequence prosperous. This year the proceeds of these pursuits were sufficient to give every man, woman and child in the band $25. As they get their meat by the same means and at the same time that they secure this revenue, it will be seen they are in very good case and need be but a very light charge on the stores at the agency.

Stock.—The cattle seem to be held more as a good-natured concession to our prejudices and importunities than from any conviction that they afford a desirable way of making a living. They put up enough hay to keep them, and live on the increase while doing so. They relegate the winter care of them to a few of the women who, it must be said, discharge the trust very satisfactorily.

Buildings.—Their houses are, in general, poor, being only occupied occasionally. Their stables serve well enough what stock they have.

Education and Religion.—There is a day school on the reserve, which is fairly well attended while the Indians are at home. In religion they are Roman Catholics.

Temperance and Morality.—Owing to their roving habits, their standing in these respects is hard to arrive at. Drinking exists, but as it leads to no reported breaches of the law, its extent can only be a matter of conjecture.

PAUL'S BAND, NO. 133A.

Reserve.—Paul's reserve is situated on the shore of White Whale lake about 20 miles west of the agency offices. It contains 20,920 acres, three-fourths of which is timbered..

Tribe.—The Indians of this band are Stonies.

Vital Statistics.—In October, 1903, 154 persons were paid annuity, of whom 34 were men, 43 were women, 42 boys and 35 girls. There were 7 deaths and 5 births recorded for the year.

Health and Sanitation.—The health of the band has been good ; sanitary regulations were well carried out and the medical attendance was satisfactory.

Occupations.—Hunting and fishing are the main sources of their livelihood, cattle-raising comes next, and farming follows quite a bit behind and in a small way. They are far from markets for their produce and find difficulty in getting what grain they raise threshed. They earn wages working for surveyors, lumbermen and among farmers.

Building.—Their houses are small ; and light, ventilation and privacy are but little considered in their construction. The stables are, also, poor.

Stock.—Hay was secured in better condition than at the other reserves, but the icy ground claimed its victims. Unauthorized killing was more rife than usual, the severe weather which caught them at home about New Year, after their first hunt, preventing their going out again, and leaving them without meat from their usual source of supply.

Farm Implements.—They have sufficient for their requirements and are always provided when needed.

Education and Religion.—A day school is maintained under the direction of the Methodist Church. Owing to the lamented death of Mrs. Hopkins, the teacher, last winter, it has not flourished, but revival is looked for under Mr. Blewett, whose engagement opens July 1. These Indians are Methodists and have a resident missionary.

Characteristics and Progress.—With whitefish at their doors and fur-bearing animals at hand, they are prosperous, and because of their prosperity they are unprogressive. Mr. Pattison, the farmer, is assiduous in his efforts to advance them in the way of civilization, with as good results as the conditions make possible.

Temperance and Morality.—While they remain at the reserve, there is little to complain of in their conduct in both respects. When they are abroad it may be different, but then we only hear vague rumours, which no one appears willing to substantiate.

General Remarks.—In the course of the year the cattle stable at the agency headquarters was removed to a more convenient and less unsightly location and additional shed-room for stock was provided. The houses of the agent and clerk have been objects of restoration and repair and the appropriation made to reshingle the storehouses has been utilized. At both Paul's and Alexander's reserves the farm buildings have been repaired and a new ration-house is under construction at the latter place.

Apart from the resignation of Mr. Blewett as farmer at Enoch's reserve, which took effect June 30, the staff remains unchanged and I beg to record my appreciation of the hearty co-operation of the members in all that makes for the welfare of those committed to our charge.

I have, &c.,

JAS. GIBBONS,
Indian Agent.

NORTHWEST TERRITORIES,
ALBERTA—HOBBEMA AGENCY,
HOLLBROKE, July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my report of the affairs of this agency for the fiscal year ended June 30, 1904.

Headquarters.—The headquarters of this agency is prettily situated on the left bank of the Battle river, about 10 miles down from Ponoka.

Reserves.—The following reserves, with their location, are comprised and within the jurisdiction of this agency : Samson's reserve, No. 137, lies to the southeast of Hobbema, on the Calgary and Edmonton railway, about half-way between the towns of Wetaskiwin and Ponoka, and contains 39,360 acres. Ermineskin reserve, No. 138, lies to the northwest of Samson's, commencing a little east of and near the railway line, extends westerly across the railway to the Bear's Hill lake; it also contains 39,360 acres. Louis Bull's reserve lies to the northwest of Ermineskin's, and is not yet apportioned to the band.

Montana reserve, No. 139, also called the Bobtail reserve, lies to the south of Samson's reserve and the Battle river, and to the northeast of Ponoka. It contains 19,520 acres.

Pigeon Lake reserve lies at the south end of Pigeon lake and contains 4,800 acres. This reserve is for the use of all the Indians within the jurisdiction of this agency.

The total area of these reserves is 103,860 acres, or 162 square miles. The whole, of course, excepting Pigeon Lake reserve, forms an irregular figure with the Calgary and Edmonton railway line, running diagonally through it, north and south for fifteen miles. Its surface consists of swamps, timber-lands, willow brush, hay-lands, and prairie knolls ; all very much mixed.

Tribe.—All, or very nearly so, of these Indians, are Crees.

Vital Statistics.—At the annual payment of annuities there was a total of 645 souls; that is, there were 162 men, 188 women, 151 boys and 144 girls. The total increase by births alone was 38.

Health and Sanitation.—The health of the Indians generally has not been altogether satisfactory. It is true, there were no contagious disease, unless colds, catarrh, influenza and consumption be contagious. There were victims to one or other of these afflictions every month of the year. Everything was done that could be done to alleviate the distress of the afflicted, and also to prevent any possible contagion. During the fall of the year, before winter set in, and while the families were living in tents, every Indian house was lime-washed inside and outside. After the winter was over and as early as possible, all the accumulated garbage from around all the dwellings was gathered and burned; the refuse around stables and sheds was hauled away. The Indian custom of living in tents or lodges during the summer is probably more conducive to health than otherwise. It is habitual also to change localities once or twice a month. But cleanliness of person, cleanly habits, cleanliness in the household, so that the women and children shall partake and be a part of it, is something not yet attained. Expectoration, anywhere and everywhere at any time, is the pernicious habit of nearly all. Moreover, there is the ancient customary habit from times prehistoric of passing the same long medicine pipe from mouth to mouth when in council convened, keeping alight and glowing the pipe of peace and brotherhood, and at the same time keeping active methods of infection of their throat diseases.

There is no resident physician, but Dr. Robertson, of Wetaskiwin, is the medical attendant when required, and promptly responds when any call is made for his services.

Resources and Occupations.—The resources and occupations have been very varied and numerous.

Quite a number, probably twenty, found occupation and fair remuneration near the reserves by clearing brush-land for new settlers. The fishing at Pigeon lake was a fruitful source of income. The new settlers and the little towns on the Calgary and Edmonton railway are capital markets for whitefish, of which the Indians have reaped their share of benefit. Last November about forty families cleared for Buffalo lake and for two months were engaged catching muskrats, when the demand for skins by merchants stopped, prices fell, and the Indians returned to their homes.

A few were engaged in butchering and a few others were employed by merchants as traders. After the winter and as soon as the ice was gone out of the Battle river, about twenty-four men were engaged by saw-mill owners to drive saw-logs down from Pigeon lake to the Ponoka saw-mills. But the chief and main resource for all the Indians, if they could only thoroughly be brought to realize it, is the land with its productions. From this source more supplies and steady comforts were realized than from all outside resources combined. The particulars of all these resources are found in the agricultural and industrial statistics now being forwarded to the department. I might add that, notwithstanding some severe and unlooked for losses among the crops, the total gains were $5,000 greater than the previous year. The most of this increase was received from the sale of hay, of which all over the reserves there was a bountiful crop.

Buildings.—The progress made in building new houses and stables was satisfactory. The plan pursued was to build with hewed logs one story, and put on a half story made of lumber and cover with shingles. The lumber is procured from the Indian saw-mill at the agency headquarters. The saw-logs were hauled to the mill during the winter by such Indians as required lumber and shingles during the ensuing summer. At a convenient and suitable time these logs were sawn into dimension stuff and lumber as required by their respective owners. The department paid the expenses for a sawyer, and the Indians did the remainder of the necessary work. The saw-mill, a small turbine water-power, has been an exceedingly useful convenience to all the Indians.

Cattle.—A fine lot of cattle, having one hundred and thirty owners, are evenly distributed over the reserves ; and equally distributed among them are thirty thoroughbred bulls, purchased by the department. This method of assisting industrious Indians has proved an excellent one ; and even promises as good results, if not greater, for the future. The quality of the beef raised by the cattle-owners and sold to the department for the use and benefit of destitute Indians, unfitted by infirmity to help themselves, was excellent and equal to any beef sold in the towns on the railway. The amount sold for this purpose was thirty-seven thousand pounds ; an additional amount for family use, and so used, equalled forty-eight thousand pounds. The cattle are a promising lot of a thousand head. Even now I see waddling past the agency headquarters a bunch, rolling fat, the picture of health and development.

Equipment.—At the present time the implements in use meet the requirements of the Indians. The care of implements of all kinds when not in use is a difficult matter to impress upon them.

They seem utterly unconcerned either as to the fragile nature, or as to the cost of any implement. Where it was used there it can remain until it is wanted to be used again. They know then where it is. Of course this improvidence and waste is a great impediment to their progress. My farmers are constantly trying to make them care for their harness and wagons and implements in use by putting them away under cover after the day's toil, but the lesson only lasts the one day. Even after a whole season or even after years of line upon line, precept upon precept, example upon example, the same thing has to be gone all over again.

Education.—The Roman Catholic and Methodist Churches have charge of the education of the children. Each denomination is of course assisted to a large extent by the department. The former has a missionary living on Ermineskin's reserve who is in charge of Ermineskin's boarding school, where 50 pupils of school age are being cared for, and are taught the precepts of the Roman Catholic Church. They also receive an elementary education including manners and the necessary discipline children generally require. The success of the Sisters as teachers, in moulding into shape the extremely raw material with which they have to deal, reflects credit of no ordinary kind upon their untiring zeal and patience in the work they have voluntarily taken upon themselves to perform. The fact that four pupils have attained and completed the fifth standard this year, shows the good and great work that is being accom-

plished in this Indian boardng school. The latter, or Methodist Church, has a missionary and two teachers in charge of two day schools, one on the Samson reserve near the agency headquarters, the other on Louis Bull's reserve twelve miles from headquarters. The progress in these day schools is not equal to general expectation. The greatest drawback is the irregularity of attendance. When an Indian whose children are attending one of these day schools, leaves the reserve for a time to seek a livelihood, say fishing or hunting, he takes his family with him and school education must perforce for a time cease or until his return to the reserve; for he has no one with whom he can leave his children while away at his employment.

The teachers are very painstaking and industrious, and even anxious to do their utmost for those in their charge, but are handicapped by this irregular attendance. The difference too in the mental attainments of the children at the boarding school and those at the day schools is an object lesson in itself. Some of the children, nevertheless, in these day schools show keen intelligence, are quick to learn and, under the conditions, make good progress.

Religion.—The religious requirements of the Indians are supplied by two well built good-sized church edifices, and by two missionaries. On all holy days and every Sunday, there is a regular attendance at the churches for divine service. This is especially so at the Roman Catholic church, where the missionary is constant in his devotion to his work of instructing his hearers in their duty towards God, and in their duty towards their neighbour. Due respect and attention is paid to the rites and ceremonies by the Indian so far as he knows.

The missionary of the Methodist Church continues untiringly in his attempts to raise the Indian adherents to the practice of the virtues that he teaches them. Of course it is to be expected that profession of religion will for some time yet be ahead of its practice. All the Indians of Ermineskin's band with a portion of Samson's band are Roman Catholics ; while Louis Bull's band and three-fourths of Samson's are Methodists.

A few of the Montana band are pagans; but in their daily life and practice they could not be selected from the others.

Characteristics and Progress.—In many ways the characteristics of these Cree Indians are very peculiar and in some indeed are past finding out. For instance, love of physical ease, of indolence, appears as one of them. I have an experience as follows : One day upon the prairie, after considerable persuasion with an Indian to go to work, he attached his two horses to his mower, climbed into his seat and commenced cutting grass. The sun, never overpoweringly hot in this far north, came out warm and comfortable. The Indian enjoyed it and continued cutting. As the day proceeded, his enjoyment increased until it became overwhelmingly comfortable. He stopped his horses, got down from his seat, and lay in the grass to luxuriate in comfort and more ease, till he would be off to sleep and perchance to dream. After a short time of quietness, a fair-sized gopher, with its usual inquisitiveness, bobbed up like a picket pin, chirped at the outfit and curiously watched the Indian; motionless for a time the Indian in return watched the gopher, then stealthily and gradually, he cut off the gopher from his lair and retreat. The chance to kill something aroused his sporting instincts—his indolence vanished, he becamt alert, active, imbued with energy and after that gopher he went with all his might and main, in and out and around that machine and horses and finally having a chance at the little brute, he made a quick swish with his whip, when, away went the team. For a short period hay was cut with lightning rapidity, but quickly with a bang and a smash the machine struck a rock and over it machine and horses were tossed into a tangled heap. Once more inertness had come upon him. Easily, cooly and quietly he watched the destruction of his fifty-dollar machine, lazily he walked over to the chaos of matter, succeeded in setting free his horses, tossed the harness on to the heap of the ruins, and went home to rest. No gopher. No mower.

Here we have characteristics not easily extracted or explained. I have another experience, but of a different nature, with an Indian of Ermineskin's band, Alexis White Bear, No. 98, whose career is an illustration of industry well directed. Eight years ago, this young man came from Saddle Lake, being transferred at his own request to Ermineskin's band. He married a daughter of old Grasshopper, No. 22, and started on his career. For two years he worked for others, among whom, one was Ermineskin, the chief. Then he commenced to farm for himself and started a home on his own account. To-day after six years steady work he has a good house, a good stable and cattle-sheds with corrals; a growing crop of thirty-five acres in a field of sixty acres well fenced with wire. He used his own four good horses to cultivate his field, has a heavy farm wagon, a bob-sleigh, harness and all the necessary equipment of a small farmer; keeps himself and family comfortably, has thirty head of cattle, and after wintering them had fifty tons of hay which he sold in Wetaskiwin at a good price. There are others, I am glad to report, nearly equally as successful. The yearly progressive step is most marked by those in closest contact with them. While Alexis bought a wagon, there were eleven others who did the same thing. Six other Indians bought as many mowers, and four horse-rakes. During the winter fourteen Indians purchased as many bob-sleighs and as many bought double heavy harness and other equipment that could be used as a means of further production and progress. As the years roll on, less and less do the industrious Indians need the help of the department. However, there is a large class of sick old cripples, infirm in one way or other and destitute, for whom the department still makes provision. Then there is another class—the lazy and wayward—those who have parasitical habits, who can only be saved by being brought over to industrial ways. It is this class that worries an agent and occupies the most of his time with the least results. This is the class that does nothing in the proper way or at the proper time. The destitute can be rationed; the industrious can be left alone; while the shiftless, the most unsatisfactory, get the most of attention.

Temperance and Morality.—That the majority of these Indians have a fairly strong taste for intoxicants there can be no doubt. The scheming and dodging to secure the vile fluid, and the lying to protect and hide the seller, are ample proof of the subjection to its seductive wiles. But there are Indians, I am glad to report, who will in nowise have anything to do with it in any shape or form. The leaders of this as yet small band are Ermineskin, the chief of Ermineskin's band, and Samson, the chief of Samson's band. This surely is real progress for an Indian. In a general way the law protects the Indians and they are temperate; and very seldom is anything heard of any immorality amongst them.

I have, &c.,

W. S. GRANT,
Indian Agent.

NORTHWEST TERRITORIES,
EASTERN ASSINIBOIA—MOOSE MOUNTAIN AGENCY,
CARLYLE, July 6, 1904.

The Honourable
The Superintendent General of Indian Affairs.
Ottawa.

SIR,—I have the honour to submit my annual report, together with a statistical statement and inventory of all government property under my charge for the fiscal year ended June 30, 1904.

WHITE BEAR'S BAND.

Reserve.—The White Bear's reserve is situated at the east end of the Moose mountains, about nine miles north of the town of Carlyle, and comprises an area of 30,288 acres. A large portion of the reserve is covered with hay meadows and lakes. Fish such as pike, pickerel and mullet are abundant in two of the larger lakes. The reserve is well adapted for mixed farming. The soil is heavy clay loam, and a portion of the southeastern part is fairly level, and suited to grain-raising. Good building logs are easily obtained in the bush.

Tribe.—The Indians occupying this reserve are a mixture of Crees, Saulteaux and Assiniboines.

Vital Statistics.—The population consists of 54 men, 61 women, 39 boys and 42 girls, making a total of 196. There were 10 births and 8 deaths during the year. One adult died from heart failure and 7 children died, mostly from consumption. One woman was transferred to the Birtle agency.

The population, according to former statements, ought to be 202, but after taking a careful census, I find that 196 is the correct number.

Health and Sanitation.—The health, generally speaking, has been good during the past year. No disease of an infectious nature has shown itself on the reserve. A number of Indians suffered from the grippe during the winter, but only one death was caused by this disease.

Dr. Hardy has been attentive in the performance of his duties, and, in addition to the work done while on the reserve making his monthly visits, he prescribed for many who called at his office in town.

The sanitary measures as prescribed by the department are carried out as far as it is possible to do so. The houses are with few exceptions kept in a cleanly condition. All the Indians requiring vaccination have been attended to. No trouble is now experienced in having this operation performed.

Occupations.—The Indians derive much of their support from the sale of dry fire-wood, willow pickets, logs, fish and wild fruit. The women make bead-work, and tan cow-skins for the white settlers.

They have been very industrious during the present season. Over 200 acres of spring ploughing was done, and in addition to their farming operations, the work of draining hay sloughs, and fencing the reserve, provides them with steady employment.

The prospects for a bountiful harvest were spoiled by a heavy snowstorm which came before grain was all cut, and as it was followed by heavy frost, the grain threshed was unfit for sale. The grain was used to good advantage as feed for the stock during the winter.

The acreage under crop this spring is the largest they ever had. The grain is growing rapidly, and looks well. The prospects so far are good if the grain is not caught by early frosts.

Stock.—These Indians have now all the cattle they can provide feed for. Owing to the past few seasons being so wet, the hay sloughs are all full of water, and as the uplands have all been cut over during the past few years, it will not be wise to increase the herd until conditions change.

The hay-supply put up last year had to be largely supplemented by the use of straw, and as the weather conditions were very bad, the losses sustained were heavier than usual.

Twenty-six head of cattle were butchered for the Indians' own consumption and for the requirements of the agency. Four steers were sold to the department for work oxen. Four thoroughbred bulls are now used in the herd. Two bulls were transferred to File Hills in June. These animals were all well cared for during the winter at the agency headquarters.

Buildings.—The Indian houses are on the whole warm and comfortable, and are well lighted with windows, and floored with lumber.

Owing to the high price of lumber and shingles the majority of the houses have to be roofed with sods. Another drawback to progress in the matter of dwellings is the custom of abandoning, and tearing down, the house when the death of one of the family occurs. It will take time and patience to overcome this practice.

Farm Implements.—The Indians are now provided with a good supply of farm implements, such as wagons, mowers, &c.

A threshing-engine, separator and tank, and also a grain-crusher were purchased during the year, and will be a great benefit to the band.

Education.—The day school is now in charge of Miss E. Scott as teacher, Miss McDonald having resigned in February.

There are 20 pupils on the roll, 13 boys and 7 girls.

The pupils are classified as follows :—

	Pupils.
Standard I	10
" II	7
" III	3

The average attendance for the past year was a little over 10.

Miss Scott is getting along very well and keeps good order in the school. Sewing and knitting are taught in addition to their studies.

The school-building was warm and comfortable during the past winter, and as it is well ventilated and kept in a cleanly condition, the sanitary condition of the building is excellent.

Religion.—The resident Presbyterian missionary, Mr. Dodds, holds services regularly at the mission-house every Sunday, and the attendance at these services is good. He also visits the day school and instructs the children on religious subjects. Mr. Dodds is ably seconded by his wife, and together they are doing good work.

Rev. Father Morard, of Forget, visited the reserve twice during the year, and held services for those of the Roman Catholic persuasion.

Temperance and Morality.—No cases of intemperance or immoral conduct have been brought to my notice during the past year.

Dancing of all kinds has been stopped on the reserve.

The introduction of athletic sports and football as a recreation does much to keep their minds off the dance question.

Characteristics and Progress.—The Indians in this agency are making fair progress towards civilization. The moral and social life on the reserve shows marked improvement. The whole tone of the Indians is changing for the better. They are law-abiding and civil, and are not given to loafing around the towns.

They still require constant supervision when engaged at their farm work, but they are steadily increasing their acreage for crop, and less trouble is experienced than formerly in getting them to perform farm work.

The following is a statement of the acreage sown this year by a few of the Assiniboines who were removed here from the West reserves in 1901 :—

	Acres.
Echwayatonka, wheat	24
X. J. McArthur, wheat	26
Washtay Oakshid, wheat	22
Rupert, wheat	14

The Indians are steadily increasing in personal possessions.

General Remarks.—A good implement-house, in which the threshing-machine, binders and other machinery are stored, has been erected at the agency headquarters. An engine-house, which is also used as a workshop, has also been built, and is a great benefit, as the engine can be used during the winter.

I am teaching Emile Allan, one of the Qu'Appelle school graduates, to run the engine, and, as Mr. Jack, my assistant, is a capable separator man, we shall not have to depend on outside help during the threshing season.

Mr. J. Lestock Reid, Dominion Land Surveyor, surveyed the addition to the north side of the reserve in May. He also took the levels of several of the hay sloughs with a view to draining them. This work is now well under way, and although very little benefit will be derived from them this year, owing to the grass being killed by water, it will in time prove a great benefit.

The question of securing a permanent source of hay-supply is an important one for the Indians.

The work of fencing the reserve is progressing favourably, and about two-thirds of this work is now done. The labour of cutting roads through the bush, and along the line where the fence has to go, is much greater than the actual work of fence-building.

Mr. W. M. Graham, Inspector of Indian agencies, made a general inspection of the stock and audited the books in April.

The staff in this agency consists of Mr. James Jack as general help, and myself.

I have, &c.,

W. MURISON,

Indian Agent.

NORTHWEST TERRITORIES,
SASKATCHEWAN—ONION LAKE AGENCY,
ONION LAKE, September 27, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on the affairs of this agency for the fiscal year ended June 30, 1904, which will be followed by an inventory of government property under my charge, also a tabular statement.

The bands of Indians comprised in this agency are six, known by the following names and numbers : Seekaskootch, No. 119 ; Weemisticooseahwasis, No. 120 ; Oneepowhayo's, No. 121 ; Puskeeahkeewin's, No. 122 ; Keehewin's, No. 123 ; and Chipewyan, No. 124.

SEEKASKOOTCH BAND, NO. 119.

This reserve is situated north of the Saskatchewan river and about directly north of Fort Pitt. It contains an area of 38,400 acres and varies very much in regard to natural features. The northern portion is wooded with poplar and pine interspersed with patches of prairie. The centre is flat, studded with groves of poplar and willow and at present well supplied with water in the form of small lakes and ponds, and in favourable seasons hay is plentiful. The southern portion is wooded with poplar and pine and has some fine pasture-land and hay swamps. The predominating character of the soil is sandy.

Vital Statistics.—The population of this band is 294. Since the previous payments 17 births and 10 deaths have taken place.

WEEMISTICOOSEAHWASIS BAND, NO. 120.

Reserve.—This reserve contains an area of 14,080 acres and is situated on the west side of the Seekaskootch reserve, which it adjoins, and the southern boundary of each reserve runs on the same line of longitude. The surface is rolling and poplar groves and hay swamps are plentiful. The soil is light and any profitable yield of grain can be looked for only in seasons when there is plenty of rain during the summer.

Vital Statistics.—The population is 94. During the twelve months 2 births and 6 deaths took place.

ONEEPOWHAYO'S BAND, NO. 121.

Reserve.—This reserve is also known as Frog Lake reserve, deriving its name from the large lake which pierces it from the north. In extent it is 21,120 acres. Poplar groves are numerous, with here and there a few pines, and the soil is sandy loam.

Vital Statistics.—The population is 101. There were 8 births and 3 deaths during the fiscal year.

PUSKEEAHKEEWEEIN'S BAND, NO. 122.

Reserve.—This reserve is joined to Oneepowhayo's, the northwest corner of which forms part of its boundary. On the eastern side it is partly bounded by Frog lake. Its area is 25,600 acres and it abounds with poplar groves and has some good stretches of hay. Towards the north it is more heavily timbered. The general character of the soil is sandy loam.

Vital Statistics.—The population is 31 ; 2 births and 1 death occurred.

KEEHEEWIN'S BAND, NO 123.

Reserve.—This reserve lies northwest of Frog lake about 35 miles and covers an area of 17,920 acres. There is a large alkali lake extending into the northern portion and a long stretch of the western boundary, to the south, is formed by the shore of a fresh-water lake known as Long lake. The area of the reserve is 17,900 acres. The central and northern portion abounds with hay swamps and has some good-sized poplar groves. The southern portion is hilly and well timbered with poplar and pine.

Vital Statistics.—The population of the reserve is 124 and during the year there were 9 births and 5 deaths.

REMARKS APPLYING TO FOREGOING BANDS.

Tribe.—In the foregoing, five bands have been referred to, all of them being of the Cree nation; these will be dealt with as one because the most industrious of the members have been located on the reserves close to the agency headquarters, viz.: Seekaskootch and Weemisticooseahwasis, and treated as one band under the head of Seekaskootch band, No. 119.

Health and Sanitation.—The health of these Indians during the past year has been good, no epidemics having visited any of the reserves. Precautions are taken at the opening of spring to have the filth and rubbish that accumulates round the houses during the winter burnt, and the premises generally cleaned up. There is a general improvement in regard to cleanliness to be noticed among these Indians.

Occupations.—Grain-raising never has proved an actual success here and during the past season not much attention has been given to this industry. There has been a steady demand for labour in the district and during the spring many of the Indians earned their own living freighting from Fort Pitt to Lloydminster and in bringing supplies down the Saskatchewan from Edmonton. The principal industry

followed by the Indians is cattle-raising and in this they generally have good success ; the past season has, however, not been so profitable as usual. A considerable income was also derived from the sale of furs, not only by the hunting Indians, but by those termed 'working Indians,' as muskrats were plentiful and the latter could trap them without seriously interfering with their other occupations, and the demand for rat-skins was good. The Indian women are seldom found idle at their homes ; they make clothing for themselves and their children, a very common occupation is tanning hides, from which they make moccasins for themselves and the family ; they also receive a number of hides from settlers to be tanned for use as robes. Some of the women also assist in the hay-fields.

Buildings.—The Indian houses are small but warm and comfortable ; they are seldom occupied in the summer, as Indians find it healthier and in some ways more comfortable, under canvas. In the fall the houses are repaired for the winter and are whitewashed with 'whitemud' or lime when procurable. Besides open mud fireplaces many have cooking stoves, and modern cooking utensils are in general use, and there are but few houses one enters where one is not offered a chair ; tables are no rarity, but strangely enough it is a rarity to see them used at meal-time, most Indians still prefer the floor, but the cups and plates are usually spread upon a piece of oilcloth or something of the kind.

Some of the Indian stables are much improved and I look for further improvements next fall.

Stock.—The cattle owned by these Indians are of a very good class, and three thoroughbred bulls are being supplied to add to the service of the open season. The number of cattle in the hands of Indians has been increased by the distribution amongst them of stock by the department, most of which has been given on the loan system.

Farm Implements.—The Indians are well provided with mowers, rakes, wagons and sleighs, most of them being their own property purchased out of earnings and sale of cattle; many of the sleighs are, however, of their own make.

Education.—There are two boarding schools situated convenient to the agency, which are attended by children from the neighbouring reserves as well as by some from the Chipewyan reserve thirty-six miles north ; there are also some non-treaty children that come from a distance. One school is under the auspices of the Roman Catholic Church and the other of the Church of England. Both schools are making progress, but the greatest sign of the parents not taking sufficient interest in the education of their children is a desire to take them away while they are yet too young.

Religion.—There are two missions, one connected with each school, Roman Catholic and Church of England. The former is the one most largely attended, having the greater number of adherents; the members of both churches seem to be devout in their worship.

Characteristics and Progress.—The majority of these Indians are industrious and seldom lose the opportunity of earning money when such presents itself; they wish to be self-supporting and there is an instance of two families having left the Onion Lake reserve, taking their cattle with them, and locating on Keehewin's reserve, and they are only allowed to do so provided they will not expect assistance from the department. So far it has succeeded satisfactorily, and two other families are expected to follow during the year we have now entered.

Temperance and Morality.—These Indians are not addicted to the use of intoxicants, and in other moral respects they compare favourably with the rest of their race.

CHIPEWYAN BAND, NO. 124.

Reserve.—During the past year a reserve containing 46,720 acres was surveyed for this band of Indians. It is situated about thirty-six miles north by seven miles west

of the agency headquarters; at least that direction finds the southeast corner. The Beaver river to the north flows in a southeasterly direction and cuts off the northeasterly corner of what otherwise would be a rectangular reserve. The centre is flat, and in wet seasons somewhat marshy in places; the wild vetch grows luxuriantly and there are long stretches of excellent hay intermixed with vetch. The whole is interspersed with poplar groves, and to the south and west it is more heavily timbered with poplar and spruce. The soil is rich loam.

Vital Statistics.—The population is 264, and during the year 10 births and 11 deaths occurred.

Tribe.—These Indians are Chipewyans.

Health and Sanitation.—The health of these Indians has been fairly good, no epidemics have attacked them. Consumption, as with other Indians, is their greatest trouble and among the old there is a good deal of blindness. In spring there is a general cleaning-up around the houses and the rubbish collected is burnt.

Occupations.—It is the exception when any of these Indians require assistance from the department, they are almost altogether a hunting band. They raise potatoes and other vegetables, but, as the district is subject to early frosts, the growing of grain is not profitable. They have a number of cattle, which in winter occupy the attention of those not away hunting. The women take part in attending to the cattle during the winter.

Buildings.—The houses are larger and more substantially built than those of the Crees. Their stables are as good and are generally well prepared for the winter.

Stock.—The class of cattle is inferior to that of the Crees; they have refused to accept thoroughbred bulls which would be loaned them if they would do away with those of their own raising. Considering that these Indians beyond the treaty annuities they receive, are little expense to the department, they look after their affairs fairly well.

Farm Implements.—They have a sufficient number of mowers, rakes, wagons and sleighs for their requirements, all of which are their own property.

Education.—There is no school nearer than Onion Lake, where there are six pupils at the Roman Catholic boarding school. They are apt pupils, but, like the Crees, the parents are anxious to take them home before they have derived full benefit.

Religion.—The band is altogether Roman Catholic and under the auspices of that church there has been a mission of long standing which comes within the limits of the reserve. The Sunday services are well attended when the Indians are not away hunting.

Characteristics and Progress.—The Chipewyans are, generally speaking, comfortably off; they have had a successful year's hunting and in that way can derive a living so long as the hunt lasts.

Temperance and Morality.—These Indians are not given to the use of intoxicants; and, taking them as a whole, they are a well-behaved and law-abiding people.

I have, &c.,

W. SIBBALD,

Indian Agent.

NORTHWEST TERRITORIES,
ALBERTA—PEIGAN AGENCY,
MACLEOD, August 13, 1904.

The Honourable
The Superintendent General of Indian Affairs.
Ottawa.

SIR,—I have the honour to submit the report of this agency for the fiscal year ended June 30, 1904, together with the usual statement of agricultural and industrial statistics covering the same period.

Reserve.—The Peigan reserve is situated on the Old Man river, west of Macleod. Its form is almost square, and its area 181⅔ square miles, or more than 116,000 acres. In addition to the reserve proper, the Peigans have in the Porcupine hills a timber limit containing eleven and a half square miles. The Crow's Nest Pass railway passes through the reserve from northeast to southwest corners, there being fifteen miles of track and two sidings (Nos. 5 and 6) within the reserve limits. This reserve is composed of undulating prairie and untimbered hills, all being suitable for grazing purposes. Favourably situated among the hills, are several large springs of good water, to which the range cattle have easy access throughout the whole year, while the Old Man river, which flows through the reserve, and Beaver creek, which enters from the north, afford an abundance of water during the open seasons.

Tribe.—The Peigans are a portion of the three tribes, Blackfeet, Bloods and Peigans, that form the Blackfoot nation or family in the great Algonkian linguistic stock. These Peigans are commonly called the North Peigans, in order to distinguish them from the larger branch of the tribe, the South Peigans, who are United States Indians located in Montana.

Population.—The population of the reserve is 506, of which total number 151 are men and 163 are women, and 192 are children under sixteen years of age. Further details in connection with this subject are shown in the tabular statement.

Health and Sanitation.—The general health of the Indians has been good, and improvement is noticeable in the cleanliness of their dwellings.

Occupations.—The cattle and horse industries are the principal occupations of this band, for the reason that they take more kindly to this work, and the natural facilities, climate and soil, are better adapted for stock than grain. They have, however, fenced in this spring two hundred acres and broken thirty-five acres, and intend going into grain-raising on a limited scale.

Buildings.—More or less building is continually in operation; among these are Good Prairie Chicken's frame house, one and a half story; Joe Pott's frame house, Little Bear's house, of log wall, with lumber gables and shingle roof.

Cattle.—The year was a prosperous one. For the animals butchered the Indians received $3,897.30, most of which was expended, as in previous years, upon wagons, harness, saddles, ploughs, mowers, rakes, lumber, food and clothing. Last year 363 calves were branded at the spring round-up. This year we branded 468, an increase of 105.

Fencing.—We have built 11 miles of wire fencing this spring. This constitutes considerable work, as the timber for posts, of which we used several hundred, was hauled from 12 to 15 miles. The wire and staples were paid for by the Indians out of their own earnings from various sources.

Education.—The Church of England and Roman Catholic boarding schools still continue in their efforts to improve the mental and moral condition of the children.

Temperance and Morality.—These Indians are more or less fond of whisky, and although every means is used to try to stop the traffic in liquor, there are still a few who manage to get it. In other respects the Peigans are a moral lot of people.

I have, &c.,

J. H. GOODERHAM,
Indian Agent.

NORTHWEST TERRITORIES,
ASSINIBOIA—PELLY AGENCY,
CÔTÉ, August 19, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my second annual report for this agency, together with agricultural and industrial statistics and inventory of government property under my charge up to June 30, 1904.

Reserves.—The total area of the three reserves in this agency is 78,784 acres ; about 31,000 of this is covered with small poplar, unfit for timber, except on the northwest of Key's reserve, where there is considerable good spruce and tamarack from which building logs can be obtained. The soil in most places is deep clay loam, producing a rank vegetation, and the reserves, being well watered with small lakes and creeks, the latter running from the Duck mountains to the Assiniboine river, provide ideal runs for cattle ; while the whole country, being rolling and dotted with bluffs, is most picturesque.

CÔTÉ'S BAND, NO. 64.

Reserve.—In my last report I designated Yorkton as the locating point to find this reserve; since then Kamsack, a new divisional point on the main line of the Canadian Northern railway, has been started on the southwestern part of it ; the reserve comprises 56 square miles.

Tribe.—The Indians of this band are Saulteaux.

Vital Statistics.—At the annuity payments completed last month, there were 252 souls in this band, consisting of 55 men, 61 women, 73 boys and 63 girls. There were during the year 9 births and 12 deaths; five of the latter were adults, all of whom died from consumption.

Health and Sanitation.—The health of the Indians in this agency has been good during the year, there having been no epidemic; 19 were born, a birth-rate of forty per thousand, and 20 died, a death-rate of forty-two per thousand, 9 out of the 20 who died were adults, 6 of whom died from consumption, 2 from old age and 1 from accident ; all the children died from lung trouble, chiefly scrofulistic tuberculosis. These people look after sanitation closely, keeping the surroundings of their houses clean and tidy, while as to the interiors, I always find them clean and neat. Most of the houses that I eat my lunch in, when visiting the reserves, lay the table with a nice white table-cloth and other table necessaries. A doctor who accompanied me when visiting the reserves last winter was astonished at the neat clean appearance of the interiors of their homes. I had to request Dr. Cash, the medical attendant, to visit the agency five times during the year, as against thirteen visits the previous year.

Education.—The children of this reserve are educated at the Crowstand boarding school, which is situated in the southeast corner of the reserve. The department

allows a grant for 40 pupils, but 45 are generally on the roll. I cannot speak too favourably of the excellent work being done at this school by the Rev. Mr. McWhinney, the principal, the staff of four ladies and the farming instructor. The girls get a thorough training in all kinds of housework, while the boys are well drilled in good farming and the best ways of feeding and caring for cattle, horses, pigs and poultry. Can it therefore be wondered at, that the parents, seeing that their children can get such an educational and farm training on their reserve, object more and more to being severed from them, by sending them to industrial schools ? Four children attend the Regina industrial school.

Religion.—One hundred and sixty-three of these people are Presbyterians ; they attend their church on the reserve very regularly ; there are twenty-three Roman Catholics, who attend the church on Kisickonse's reserve, one Anglican and sixty-five pagans.

Characteristics and Progress.—Now that I have been here long enough to know these people individually, I consider them, taking them as a whole, the most industrious, law-abiding band I have ever come in contact with ; they never let a chance slip by of earning money ; they are most willing to advance themselves ; as an example of this: a number subscribe for a large eastern paper and Manitoba monthly agricultural papers. I attended a concert in their school-room at New Year's, where about two hundred of as quiet, well-dressed, orderly people as one would wish to find were present, most of the men being in black suits with collars and neck-ties. A blanket Indian is unknown in this band. Physically and mentally this band is much superior to the others ; the men are a shrewd, sharp lot, and now that they have railway facilities, I expect to see them go ahead financially.

KEY'S BAND, NO. 65.

Reserve.—This reserve is three miles west of Fort Pelly and twenty northwest of Kamsack ; its area is thirty-eight square miles. The Assiniboine river forms its western boundary.

Tribe.—The people of this band are Swampy Crees.

Vital Statistics.—This band has a population of 79, made up of 19 men, 19 women, 18 boys and 23 girls. There were during the past year, from annuity payment to annuity payment, 2 deaths and 3 births, both deaths were from consumption.

Education.—The children attend the day school on the reserve very regularly.

Religion.—Rev. Owen Owens is the Anglican missionary. Thirty-two members of the band attend his church, which is a substantial building on the reserve, close to the mission and school-house. There are also 8 Roman Catholics, 1 Presbyterian and 38 pagans, the latter being the pure Indian part of the population, the others being treaty half-breeds.

Characteristics and Progress.—I can report little progress during the year. The reserve is, owing to its broken formation, unsuitable for farming, which work I am not urging on this reserve, until the question of a piece of good farming land I am trying to obtain for these people is settled ; but it is admirably suited for stock-raising, being well watered and sheltered, with abundance of hay.

KISICKONSE'S BAND, NO. 66.

Reserve.—The southern part of this reserve is nine miles from Kamsack, while its northern boundary is twenty miles; its greatest width is six miles. It is bounded on the west by the Assiniboine river and on the east by the Duck mountains and Lac la Course. It contains twenty-eight and a half square miles.

Tribe.—These Indians belong to the Saulteaux nation.

Vital Statistics.—At the census taken last month there were 138 souls in the band, consisting of 29 men, 41 women, 34 boys and 34 girls; this makes the total popu-

lation of the agency 469 souls, or 103 men, 121 women, 125 boys and 120 girls. There were 6 deaths and 7 births during the year ; one of the deaths was that of Chief Kisickonse, from old age, a most polite old man and a staunch friend to the government during the rebellion in 1885. He directed in his will that a marble tombstone be erected to his memory, which I have had done.

Education.—Rev. Father de Corby, the Roman Catholic missionary, has completed his large boarding school, situated just off the east edge of the reserve, and has it in operation with seventeen of the children in attendance ; the pupils are making excellent progress; when the school comes under the usual government grant and farming operations start, the boys will be able to get a thorough training.

Religion.—The rev. father above mentioned, has a neat little church in the centre of the reserve, which is well attended by sixty-one of the population ; there are also twelve Anglicans, sixteen Presbyterians and forty-nine pagans.

Characteristics and Progress.—This band is very willing to work and compares favourably in some ways with Coté's; although their reserve is not so well adapted for farming operations, they have broken a number of new fields this year and are making the best use of the opportunities they have.

Buildings.—Taking them as a whole, they are a fair class and are yearly improving. A number of Côté's band is now building a good two-story frame house, paying for all the material and labour from his farm, cattle and work earnings. All other houses on the three reserves are log, mostly a story and a half, chiefly with thatched roofs; six have shingled roofs. The interiors are all kept very clean and neat, many of them being comfortably furnished.

Cattle.—Although the past winter was the most severe we have had since 1892, the stock came through in good condition, there being a sufficient supply of hay and to spare. There were thirty-three losses, from accidents, cows calving, &c. The total stock on the three reserves on June 30, was 746 head. I started inoculating for anthrax last year, operating on all young stock under two years old with the result that I have not heard of the death of one that was inoculated. The Indians sold last year one hundred and one head, comprising seventy-two steers, three years old, twenty-six cows and three oxen; these realized $3,685.92, besides these, nine head were killed for private use. The heaviest steer sold weighed 1,490 pounds, and cow 1,470 pounds. The previous year one hundred and ninety-seven head were disposed of. There are eighteen pure-bred shorthorn bulls on the reserve.

Farm Implements and Agricultural Progress.—As an example of how these people are willing to help themselves toward farming, during the fourteen months I have been with them, they have purchased out of their own earnings, implements to the value of $1,186.18, comprising ploughs, wagons, mowers, a twelve-horse power, and barbed wire for fencing. During the time mentioned the acreage under cultivation has been doubled, 321 acres being under crop in 1903, during which year 106 acres were broken, and 236 acres this year; 8,484 bushels of oats were threshed last year, all good ripe again. Wheat is being tried for the first time this year, some 40 acres being put in; at date of writing it is a fine crop and will be cut in a few days. The Indians were the first to start seeding in this district last spring. The department assisted five school graduates to start farming this spring; they have all done well, having broken up good large fields. These people lack the necessary horse and ox power to work with, which if they had, they would soon be in an independent position, as they are very willing to work if they had the withal to do it; the trouble is not to make them work, as in other agencies I know, but to get them something to work with. A farmer, Mr. W. S. Rattray, was supplied this agency last spring, who is proving a great assistance to me in my work.

Temperance and Morality.—I am pleased to be able to state that, with the exception of the five cases which arose shortly after I arrived here, I have had no case of intemperance brought to my notice, yet I expect to have trouble in this respect, with the growth of the new town, right in our midst.

Taking them as a whole, I consider them a moral, truthful and as honest a lot of people as one would wish to work with, easily led but not driven, who compare most favourably with several classes of the white population.

General Remarks.—In conclusion I beg to say that I am fairly pleased with the advancement made during the past year, not only as regards work done but in respect to reduction of rations and general progress. Although there has not been, for a number of years, a regular issue of rations, a certain amount of help has been given, to assist people to work. I am steadily reducing this, having issued seventy-nine sacks of flour less than the previous year, and hope much further to reduce the issue this year, until shortly it will be a thing of the past amongst those who can work; of course there are a number of old men and women too old and feeble to better their condition who will always require a little relief. Eleven men from the three bands paid their own expenses to the Dominion Exhibition in Winnipeg last month, and will be much benefited by what they saw. Another sign of better prosperity is that at the last two annuity payments, I have, with the parents' consent, been able to increase largely the number of the children who have their annuity money funded for them, which children are attending industrial and boarding schools.

I am also pleased to be able to report that so far my agreement with these people over that very troublesome problem, the dance question, has been carried out faithfully; my agreement is, that no dance whatever, except fiddle dances, are to be held, and none of these between April 1 and November 1, the work season, and only two of these to be held in any one house during the other five months.

The agency has been much improved by replacing all the old rail fences with good tamarack post, wire and top-rail fences, with new gates and posts painted green and white.

During the year, visiting the reserves and in connection with my work, I drove with the same pair of horses, 4,028 miles.

Before closing I should like to testify to the willing and great help I have received from my clerk, Mr. F. Fisher, who also acts as interpreter, storekeeper and dispenser of medicines.

I have, &c.,

H. A. CARRUTHERS,

Indian Agent.

NORTHWEST TERRITORIES,
ASSINIBOIA—QU'APPELLE AGENCY,
QU'APPELLE, August 25, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit herewith a report on this agency for the past fiscal year, together with statistical statement and inventory of government property in my charge.

Eight reserves are included in this agency, viz.: Piapot, No. 75; Standing Buffalo, No. 78; Pasquah, No. 79; Muscowpetung, No. 80; Peepeekesis, No. 81; Okanees, No. 82; Star Blanket, No. 83; and Little Black Bear, No. 84.

I was placed in charge of this agency on February 17 last, and my report will not therefore be a complete review of the work performed and the progress made by the Indians during the fiscal year under review.

PIAPOT BAND, NO. 75.

Reserve.—This reserve comprises the whole of township 20, in range 18, west of the 2nd meridian, and contains in all some 34,547 acres. The soil is very light and will only grow good crops in favourable years. In dry seasons it is difficult to grow grain at all. That portion of the reserve, however, which lies in the valley, contains a large quantity of grass, which when cut early and well cured makes the best of hay.

Tribe.—The Indians of this band nearly all belong to the Cree tribe.

Vital Statistics.—The population of this band is 144, composed of 35 men, 52 women and 35 boys and 22 girls under twenty-one years of age. There occurred during the year 1 birth and 4 deaths.

Health and Sanitation.—The Indians of this band appear to be a healthy lot. No infectious disease appeared amongst them during the year. The sanitary precautions of the department are carried out in a few cases.

Occupations.—Mixed farming is carried on with a good measure of success by the majority of these Indians. A good living is also made by the putting up and selling of hay in addition to what is needed for their cattle. A small quantity of dry wood for fuel is also sold, but owing to the very small supply of dry wood now left on the reserve, this industry is decreasing year by year. During the summer the women dig a large quantity of senega-root, for which they obtain good prices. The women also do quite a lot of tanning for the surrounding settlers.

Buildings.—The buildings, which are of log, although small, are well built, and, being in the shelter of the valley, afford the live stock comfortable quarters for the winter.

Stock.—The cattle on this reserve are of good quality, and although the natural increase is very satisfactory, there is plenty of room and hay for a far larger herd of cattle than these Indians now possess. During the year the government herd, which was located on Muscowpetung's reserve, was disbanded, and the government loaned the Piapot Indians some 78 head of females, so that these Indians now possess a fine lot of breeding stock.

Education.—Little interest is taken by these Indians in the education of their children, although the opposition to schools that formerly existed appears to be dying out.

Religion.—These Indians are mostly pagans and evince little or no interest in Christianity.

Implements.—These Indians are well supplied with all necessary implements.

Characteristics and Progress.—These Indians are making fair progress. They had a good crop last year and although the number of bushels threshed was only a little larger than that of the previous year, the crop itself was much more valuable ; in fact, some of the best wheat that went into Regina last winter came from this reserve. In addition to their crop, they sold quite a number of steers. These Indians appear to spend their money wisely, as is evidenced by the number of new implements and wagons owned by them, and also by the way in which they are improving their own dwellings. They are quite independent of material help from the government now, with the exception of a few very old and infirm, who receive a ration and some clothing for the winter. Nearly every cultivated field is inclosed with a wire fence, all of which has been paid for by the Indians.

Temperance and Morality.—No cases of intemperance or immorality have been brought to my notice.

MUSCOWPETUNG'S BAND.

Reserve.—This reserve is situated on the Qu'Appelle river, between Piapot and Pasquah reserves, and contains in all 38,080 acres. The 'bench' or upland consists

mainly of first-class farming land, whilst that portion that lies in the valley contains some very valuable hay-land. The timber is nearly all small and of very little use for building.

Vital Statistics.—The population is 86, consisting of 21 men, 27 women, and 19 boys and 19 girls under twenty-one years of age. One birth and two deaths were recorded during the year.

Health and Sanitation.—The general health of these Indians throughout the year does not appear to have been good, consumption being the main cause of what sickness there was. The sanitary condition of the reserve is good, the Indians carrying out the department's regulations very well.

Occupations.—The occupations of these Indians consist mostly of grain farming, stock-raising and putting up hay for sale. A small quantity of wood is also marketed.

Stock.—These Indians possess a very fine herd of cattle, numbering some 248 head, which is a substantial increase over last year's total. This year's calves appear to be a very fine lot and are numerous.

Buildings.—Owing to lack of suitable building material, the buildings on this reserve are small, but nevertheless they appear to be very comfortable and well-suited to the requirements of the stock. Throughout the severe winter of 1903-4 these Indians lost only three head of cattle.

Education.—All children of school age belonging to this band are attending school, but still I cannot say that the Indians themselves take much interest in the education of their children.

Implements.—These Indians are well equipped with such implements as they require for their agricultural pursuits. During the year they purchased another seed drill.

Religion.—The majority of these Indians are pagans, and appear to take little or no interest in Christianity.

Characteristics and Progress.—In comparing this year's statistics with those of previous years, it is at once evident that progress made in the past two years has continued, and in fact one has only to go amongst them to note that they are an industrious lot of Indians. For the same reason that their stables are small, their dwellings are also small, but comfortably furnished inside. These Indians have a large field fenced in, containing some nine square miles, in which the cattle run all the summer. Most of the fields are fenced with wire, and it is gratifying to note the care that they take of their implements. A portion of the crop on this reserve was frozen last year, but, all round, these Indians realized a fair amount for their labour, and this, together with the sum realized from the sale of their cattle, has enabled them to live well.

Temperance and Morality.—No cases of intemperance or immorality have been brought to my notice.

PASQUAH BAND, NO. 79.

Reserve.—This reserve lies about six miles west of the village of Fort Qu'Appelle and has for its northern boundary the Qu'Appelle lake. It extends back about eight miles and contains some 38,496 acres of land. A large portion of this reserve lies in the Qu'Appelle valley, which yields but little hay, however. Most of the hay is cut from sloughs on the uplands supplemented with 'prairie wool.' The upland consists for the greater part of first-class farming land. This reserve also contains a fair amount of good building material.

Tribe.—These Indians belong to the Saulteaux tribe, there being a slight admixture of Cree.

Vital Statistics.—The population, which is 132, consists of 29 men, 47 women and 22 boys and 34 girls under twenty-one years of age. There were recorded during the year 4 births and 7 deaths.

Health and Sanitation.—The health of these Indians appears to have been good throughout the year, the band having been entirely free from an epidemic of any kind. The departmental sanitary regulations are well carried out here, and most of the houses, which are well built, are kept very clean and tidy. These Indians also appear to keep themselves better dressed and cleanlier than either of the two bands above referred to.

Resources and Occupations.—From the nature of the reserve these Indians must depend almost entirely on grain-growing for a livelihood. Owing to the supply of hay being limited, only a small bunch of cattle can profitably be kept. The herd, as now owned by these Indians, numbers some 161 head, and a very fine lot of cattle they are. Quite a large quantity of fire-wood is sold by these Indians.

Buildings.—The buildings on this reserve are well constructed and comfortable. Many of the houses have shingle roofs with lean-to kitchens.

Implements.—These Indians are well equipped with implements, and are continually adding new machinery to their equipment.

Education.—All children of school age belonging to this reserve are attending school, and there is very little trouble in getting the parents to allow them to do so.

Stock.—The cattle here are nearly all well-graded shorthorns, and, as I have said before, are a very fine lot. Several of the Indians also own some very fine work horses.

Religion.—Many of these Indians profess Christianity. There are two churches on the reserve, one owned by the Roman Catholic Church and the other by the Presbyterian Church. The latter, however, I believe is not now used.

Characteristics and Progress.—There are some five or six Indians on this reserve who are making good progress year by year and who may now be classed as well-to-do farmers. On the other hand there are a lot of young fellows on this reserve who might do a good deal more than they do, in fact it is hard work to get them to do what little they do. This reserve is surrounded by three or four small towns and it is a great temptation to these young fellows to attend all the many celebrations that are continually taking place, of course much to the detriment of the farm work they might otherwise do.

Temperance and Morality.—Since taking charge of this agency three cases of intemperance have come to my notice on this reserve. However, I am glad to say that in each case the person who gave the liquor to the Indian, as well as the Indian, was convicted and punished, in two cases by imprisonment and one by a fine of $75 and costs ; and it is to be hoped that these sentences will considerably lessen the desire of these Indians for liquor.

STANDING BUFFALO BAND, NO. 78.

Reserve.—The reserve of this band covers an area of seven square miles and is situated in townships 21 and 22, range 14, west of the 2nd meridian.

The soil is of a sandy loam and rather too light for successful grain-growing. Roots, however, as a rule do well. The reserve is deficient in hay, and what hay is required is usually cut under permit on land belonging to the Dominion government.

Tribe.—These Indians belong to the Sioux or Dakota nation, and many of them belonged formerly to the United States population.

This band has a population of 211, consisting of 99 males and 112 females.

Health and Sanitation.—The past year appears to have shown a continued state of the usual good health enjoyed by these Indians. Consumption and scrofula, so common amongst the other bands of this agency, are conspicuous by their absence here, and this, no doubt, may in part be attributed to their cleanly mode of living and the neat and clean condition of their houses and surrounding premises.

Occupations.—Grain-growing is carried on very extensively by these Indians, supplemented by a small herd of cattle. A very large number of them work out for the farmers in the surrounding districts and so capable are they as farm labourers that

they are much sought after and command good wages. A special feature of this reserve is the fine gardens owned by many of the Indians, the soil appearing to be particularly adapted to this branch of farm work. Little or no wood is sold by these Indians, in fact, many of them go off the reserve for their own supply. A large amount of fish is caught and sold during the season. Every crop is now fenced with wire, in addition to a large pasture, which has been wired in for the cattle, and the whole reserve has a thrifty and neat appearance.

Buildings.—Owing to lack of suitable material, the buildings on this reserve are small. They are, however, comfortable and as far as the dwellings are concerned beautifully kept.

Implements.—This band is well supplied with agricultural machinery, which is well cared for. During the year, in company with the three bands above mentioned, these Indians purchased a J. I. Case 32-54 separator and 15 horse-power engine at a cost of $1,900, to be paid for entirely by themselves, as well as the cost of operating the same.

Religion.—Most of these Indians are nominally Roman Catholics.

Education.—The Indians of this band appear to be more interested in the education of their children than the Indians of the bands above referred to, and most of the children of school age are attending school.

Temperance and Morality.—No cases of intemperance or immorality have been brought to my notice.

FILE HILLS BANDS.

Reserves.—The Indians of these bands occupy four reserves, viz. : Peepeekesis reserve, No. 81; Okanees reserve, No. 82; Star Blanket reserve, No. 83; and Little Black Bear reserve, No. 84. The total area of the four reserves is 126 square miles and they are situated some 20 miles northeast of Fort Qu'Appelle.

Tribe.—The Indians of the four bands belong to the Cree tribe.

Vital Statistics.—The population of the four bands is 245, composed of 72 men, 62 women, and 45 boys and 66 girls under twenty-one years of age.

Resources and Occupation.—The natural resources of these reserves are hay and wood, of which there is an abundant supply. The main occupation of these Indians is mixed farming, at which they continue to be very successful. They also own a large herd of excellent cattle, which, together with their farming operations, keeps them very busy all the year round. They are, however, as a rule, able to put up sufficient hay for sale, in addition to what they feed to their stock. A very large quantity of dry wood for fuel is also cut and sold to the surrounding settlers.

Health and Sanitation.—The general health of these Indians has been fairly good throughout the year. No epidemic of any kind has visited them. Consumption and scrofula appear to be the main causes of what sickness there is amongst them. On Okanees and Peepeekesis reserves the sanitary condition of the houses is good, quite a few of the houses being comfortable log dwellings with shingle roofs.

Buildings.—There being an adundance of building material on all the reserves, most of the buildings are of a good size and well built and there seems to be a tendency amongst the Indians to build better houses for themselves than formerly. They are also well equipped with granaries.

Stock.—The large herd of these Indians is in excellent condition, both as to quantity and quality. The natural increase this year shows an excellent average.

During the year the government ranch on Muscowpetung's reserve was disbanded and a number of the females loaned to Piapot Indians. The rest of the herd was transferred to the File Hills government ranch, where new buildings were erected and everything is now in first-class order.

Implements.—These Indians are all well supplied with agricultural implements. Nearly every Indian who farms owns a complete set of implements for his own use.

Education.—Little or no opposition is shown to schools by these Indians, and every child who is of school age is attending school.

Characteristics and Progress.—From statistical information it would appear that these Indians are making steady progress year by year. Their threshing returns show a large increase, as does also the large number of cattle owned by them. Most of the farming Indians own first-class teams and up-to-date machinery, and nearly all their grain is stored in good granaries. They own a complete threshing outfit of their own.

The Kirkella extension of the C. P. Railway now runs along the southeast boundary of the Peepeekesis reserve, and the towns that are springing up along the line will open fine markets for the sale of wood and hay for these Indians, besides a close market for their grain and stock. This last will be a great consideration, as formerly these Indians had to haul all their grain to Indian Head, a round trip of some 80 miles. Besides being a very hard and trying trip in winter, it considerably curtailed the profits of their labour. However, this is all changed now and it will probably be a great incentive to the Indians to do even better than they have done.

Religion.—Most of these Indians are pagans, although a few of them profess the Roman Catholic faith and some again adhere to the Presbyterian Church. There is a Roman Catholic church on the reserve, which is well attended, and the missionary from the Presbyterian boarding school, which adjcins Okanees reserve, holds services regularly each Sunday.

THE FILE HILLS EX-PUPIL COLONY.

The File Hills ex-pupil colony was started in the spring of 1901 with the idea of placing the ex-pupils, as soon as they had left school, on farms of their own, instead of allowing them to return to the teepee as formerly. For this purpose a portion of the Peepeekesis reserve was surveyed into 80 acre lots. There are now seven ex-pupils located in the colony, all of whom are doing well. Three of these young men are married and have comfortable homes, with good outbuildings. Amongst them may be mentioned Fred Deiter, who owns a fine three-horse team, a good log, one and a-half story dwelling, with shingle roof, log stable 28 x 16 feet with shingle roof and lumber granary. Last year he threshed nearly 2,000 bushels of grain, and it is safe to say that had it not been for frost, his crop would have been much larger than this.

John R. Thomas, who took off his first crop last season, threshed 982 bushels of grain. This young man is married, and has a comfortable home with outbuildings similar to those of Fred Deiter. His crop this year promises to be more than double that of last year.

Ben Stone Child, who is also married, has stock, implements and buildings similar to those of the two young men above mentioned. Last year he threshed 2,389 bushels of grain. This year he has about one hundred and twelve acres in crop, which promises to do well.

The remainder of the boys are doing equally well, but are only taking off their first crop this year. The colony is only some six miles from the railroad now, so that their grain market is very handy, and will no doubt help to encourage these young men.

Temperance and Morality.—There have been no cases of intemperance or immorality brought to my notice from any one of the four reserves.

I have, &c.,

R. L. ASHDOWN,

Indian Agent.

NORTHWEST TERRITORIES,
ALBERTA—SADDLE LAKE AGENCY,
SADDLE LAKE, July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on the affairs of this agency for the fiscal year ended June 30, 1904, together with statistical statement and inventory of government property under my charge.

SADDLE LAKE BAND, NO. 125.

Reserve.—The reserve of this band is situated in townships 57 and 58, ranges 10, 11, 12 and 13, west of the 4th meridian. The area, including the southwestern portion occupied by Blue Quill's band, No. 127, is 82,560 acres.

The north and west portions of the reserve are undulating prairie-land, while to the southeast it is more level. There are numerous small hay swamps scattered throughout the reserve, some of which produce a good supply of hay, in seasonable years. Poplar groves abound all over, with here and there an occasional clump of spruce. One of the most attractive features of the reserve is its adaptability for stock-raising. The lake from which the reserve derives its name is situated close to the northern boundary, about half-way between the northwest and northeast corners.

Tribe.—The inhabitants of this reserve belong to the Cree nation.

Vital Statistics.—The population inclusive of Blue Quill's band, No. 127, is 244, consisting of 80 men, 80 women and 84 children. There is a decrease of one person as compared with the previous year, accounted for as follows: births 11, deaths 9, 2 Indians left the band through marriage and 2 were transferred to other bands, 1 person also joined this band by transfer.

Health and Sanitation.—The health of these Indians, generally speaking, has been good. An epidemic of small-pox prevailed during the winter. In some instances the form was severe, but notwithstanding the large number of cases, only two deaths occurred, and not altogether from the disease itself. The quarantine rules were well observed by the Indians, and by the careful attention of the medical officer, Dr. Aylen, the disease was checked early in the spring. During the year a large number of the Indians were successfully vaccinated. The whitewashing of the houses in the fall, and the cleaning up of the premises in the spring are generally attended to.

Occupations.—The industries followed by these Indians, are stock-raising and farming. Particular attention is directed to the former occupation, from which the Indians derive a good portion of their living. Farming operations on this reserve are being carried on more extensively than formerly; this spring the area under cultivation was increased nearly 114 acres over last year. During the spring the Indians improved their places by considerable new fencing. When not engaged in farming pursuits, some of them get work freighting on the river.

Buildings.—The houses on this reserve are of log and well built; several of them have shingle roofs, and with one or two exceptions are clean and comfortable. In summer few are occupied, as the Indians prefer living in tents, finding them more conducive to health and comfort during the warm weather.

Stock.—The cattle belonging to this band are in good condition, and during the year there has been a fair increase.

Education.—The boarding school is situated on the portion of the reserve occupied by Blue Quill's band, and is under the management of the Roman Catholic mission. During the year the pupils have made good progress in their class work, and in the various industries taught in the institution.

The day school located on the Saddle Lake portion of the reserve, and under the auspices of the Methodist Church, has been closed during the year, on account of non-attendance.

Religion.—The members of the Saddle Lake band are Methodists and Roman Catholics, the former denomination having the majority, and Sunday services are held in the school-house. The Indians of Blue Quill's band nearly all belong to the Roman Catholic faith, and regularly attend the services conducted by the Rev. Father Balter, at the mission, situated on the reserve.

Characteristics and Progress.—These Indians are steadily progressing, this year Peepeekesis purchased a binder, and Thomas Makookis has placed a barb-wire fence around his twenty-acre field. Other Indians have added to their equipment during the spring the following : 2 mowers, 4 ploughs, 2 sets of harrows, and several sets of harness, paying for them with the proceeds of earnings. They have improved their mode of living, and are neatly and well dressed. Many of the young men are at the present time engaged in breaking new land, for next year's seeding.

Temperance and Morality.—During the year no cases of intemperance have come before my notice, and the general morality of these Indians is fair.

JAMES SEENUM'S BAND, NO. 128.

Reserve.—This reserve is situated north of Saddle lake, in townships 61 and 62, ranges 12 and 13, west of the 4th meridian. It is a long strip of land about 12 miles in length, running north and south, along the shores of Goodfish and Whitefish lakes, and has an area of 11,200 acres.

Most of the land is rolling, and wooded with poplar and a few patches of spruce. In parts the soil is stony, but in favourable seasons grain can be successfully grown. Whitefish lake is an extensive sheet of water, and produces whitefish and jackfish.

Tribe.—The Indians occupying this reserve belong to the Cree tribe.

Vital Statistics.—The Indians inhabiting this reserve have a population of 331, made up of 97 men, 116 women, and 118 children. Since the last census there has been an increase of 4 in the population, the births numbered 19, deaths 15, one Indian joined the band by transfer and one left.

Health and Sanitation.—During the year the general health of these Indians has been much better than in previous years. Last winter small-pox visited this reserve also, but owing to quarantine being enforced and sanitary precautions taken, the disease was confined to only a few houses, and the quarantine was raised on April 1.

Occupations.—Stock-raising and mixed farming are the industries followed by the Indians of this reserve ; the former is the chief source of livelihood for them, and the country is well adapted for it. The grain crops of last season were only fair, and from a portion of the wheat grown, one hundred sacks of flour were ground for the Indians at the grist-mill on the reserve. Fur was plentiful and a high price obtained all fall, and those who engaged in hunting earned a good deal in this line. During the winter a number of the Indians got out logs for buildings and lumber. In winter a good supply of fish is taken from the lakes, which contributes largely towards their maintenance. When not employed in their usual farm work on the reserve, many of the Indians engage in trading, freighting, and working on the Hudson's Bay Company's boats in the north.

Buildings.—Four new dwelling-houses have been erected on this reserve during the year.

Stock and Implements.—The cattle held by this band are in good condition, and generally well cared for. These Indians have a good supply of machinery.

Education.—Two day schools are supported on this reserve, one at Goodfish lake, towards the south end, and the other at Whitefish lake, at the north end of the reserve. Both schools are under the direction of the Methodist Church, and during the year the attendance at each has been fair.

Religion.—The Methodist mission is situated at the north end of the reserve, where there is a church, in which services are held by the missionary, Rev. R. B. Steinhauer. There is also a church of this denomination near Goodfish lake.

The Roman Catholic church is located near Goodfish lake, about the centre of the reserve. The Rev. Father Comire is in charge of this mission. The Indians attend their respective places of worship regularly.

Characteristics and Progress.—Several of the Indians of this reserve have moved to Saddle lake, where they intend to go in more extensively for farming, as the Saddle Lake reserve affords better facilities. These people are fairly industrious, law-abiding, and in their personal appearance well dressed.

LAC LA BICHE BAND, NO. 129.

This band has a population of 11, consisting of 4 men, 2 women and 5 children. During the year there has been 1 death, and 2 Indians left the band through marriage, making a decrease of 3. They are all half-breeds, and live by hunting, trapping and freighting.

CHIPEWYAN BAND, NO. 130.

At the last annuity payments the population of this band was 79 persons, composed of 24 men, 25 women, and 30 children ; 4 births and 4 deaths occurred during the year. These Indians live altogether by hunting, trapping and fishing ; they occupy the district surrounding Heart lake, which is about one hundred and five miles north of the agency headquarters.

BEAVER LAKE BAND, NO. 131.

This band of Cree Indians live in the neighbourhood of Beaver lake, about twelve miles from Lac la Biche, and make a living by hunting and fishing. The population at the last annuity payments was 92, made up of 30 men, 31 women and 31 children. There have been 5 births, 4 deaths, and 2 Indians joined the band through marriage, making an increase of 3 persons over the previous year.

I have, &c.,

GEO. G. MANN,

Indian Agent.

NORTHWEST TERRITORIES,
ALBERTA—SARCEE AGENCY,
CALGARY, September 2, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report for the year ended June 30, 1904, together with agricultural and industrial statistics and inventory of all government property.

Reserve.—The Sarcee reserve comprises township 23, range 2, 3 and 4, west of the 5th principal meridian, and contains an area of 69,120 acres. The land is of first-class quality and good crops are raised by the Indians each year. It is a good stock range, and ranchers are given the privilege of putting their stock on by paying grazing dues. The exterior boundaries of this reserve were run last spring by Mr. J. Lestock Reid, preparatory to fencing in the reserve.

The Indians are now busily engaged at this work, and are building a fence of barbed wire, three strands, with wooden droppers of willow, posts set 15 feet apart, and sunk to a depth of 2½ feet; the posts are of willow and white poplar. The Indians are making a good job of it, and when completed will have 50 miles of fence, inclosing 69,120 acres. The Indians are also busily engaged in putting up a large quantity of hay to provide for a bunch of cattle they are getting this fall.

Tribe.—These Indians belong to the Beaver tribe from the far north.

Health.—The general health of the band is good.

Occupations.—Stock-raising, farming, working for ranchers and the sale of hay and wood, comprise the principal industries of this band.

Buildings.—The Indian houses are principally built of logs with frame roofs, and in most cases are very comfortable; several new ones have been erected this year.

Stock.—The Indians are becoming more interested in this industry each year. This is the industry that they have now to look forward to for a livelihood, and they should in a short time be independent of the government. The climate and range here cannot be surpassed for stock purposes. Last spring there were no spring storms and the mild winter put the cows through in good condition, and the calves, in consequence, came stronger. This year's branding is without doubt the best experienced in Alberta.

Education.—We have a boarding school on the reserve under the auspices of the Church of England, and an industrial school six miles from the reserve, which is undenominational; the pupils in these institutions are progressing.

Religion.—The Church of England has a mission on this reserve and a number of Sarcees are members.

Progress.—Progress is observable among many of the Indians, and some are getting better off each year, while a few remain in the same old groove.

Temperance.—The traffic in liquor is slowly but gradually disappearing; this is no doubt owing to the strong measures adopted for putting it down.

General Remarks.—We have had more than the usual number of tourists visiting the reserve this year, attracted by the Indians as well as by the scenery. The North American Indian seems to be as much of a curiosity as ever to foreigners.

Before concluding this report, I must, on my own behalf and also on behalf of the Indians, express my deep sorrow on the death of Major McGibbon, our late inspector, and the loss sustained by the department through the death of so capable and efficient an officer.

I have, &c.,

A. J. McNEILL,

Indian Agent.

NORTHWEST TERRITORIES,
ALBERTA—STONY AGENCY,
MORLEY, ALTA., July 26, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904, together with tabular statement and inventory of government property.

Reserve.—The Stony reserve is situated in the foot-hills of the Rockies, about 40 miles west of Calgary, on the line of the Canadian Pacific Railway, and is divided by the Bow river, Peter Wesley's band residing on the north, and Chiniquay's and Moses Bearspaw's bands on the south side of the river.

Morley station is about half a mile from the agency headquarters. With the exception of the southeast corner, nearly all the reserve is gravelly and hilly, a great portion being covered with large fir-trees. The area is 69,720 acres. It is estimated that nearly two-thirds is covered with timber, fir, spruce and poplar.

Tribe.—These Indians are Stonies, a branch of the Sioux nation.

Vital Statistics.—The present population is 641, composed of 81 men, 130 women, and 430 young people under the age of twenty-one.

Health and Sanitation.—The health of these Indians has been very good, in fact they have not been so free from disease for years. As a rule, they are very careful regarding the cleanliness of their houses, living in them in the winter and in tents during the summer months.

Dr. Lafferty makes frequent visits to the reserve and prescribes for those under his care.

Occupations.—These Indians raise cattle and horses, sell timber, furs and beadwork and work for ranchers.

Buildings.—The buildings have been greatly improved during the past year; the Indians, having their own lumber, have been able to repair their houses, some having replaced the old ones by larger and more sanitary buildings.

Stock.—The stock has done well, the only difficulty being that a number of the cattle are owned by widows and old men who are not able to take proper care of them; consequently, they have to be helped by the department.

The stallions have done well and the Indians take more interest in their horses after seeing the improvement from breeding to good sires.

Farm Implements.—In addition to those already on hand, I purchased six new ploughs this spring, for some of the cattle-owners, these to be paid from proceeds from the sale of beef ; about half a dozen wagons have also been added to the list.

Education.—The McDougall boarding school has been accommodating 48 pupils. The school is conducted in a very satisfactory manner. I would make special mention of the teacher, Miss M. Walsh, who has taken a great interest in her work. In addition to her other duties, she has taught a number of the girls music.

Religion.—These Indians all attend the Methodist church.

Characteristics and Progress.—The Indians on this reserve are steadily progressing, and if sufficient employment can be found, the able-bodied will require very little help from the department.

Temperance and Morality.—As a rule, these Indians are temperate; and morally they are above the average Indian.

General Remarks.—These Indians, in general, have behaved very well, giving very little trouble, and so long as they find work and reasonable pay for it, are satisfied ;

owing to the reserve being away from a town, there are not so many chances of making money, but it is better for the Indians morally.

I have, &c.,

H. E. SIBBALD,
Indian Agent.

NORTHWEST TERRITORIES,
ASSINIBOIA—TOUCHWOOD HILLS AGENCY,
KUTAWA, July 4, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following annual report for the year ended June 30 last, together with statistical statement and inventory of government property under my charge.

Reserves.—The agency is situated near small poplar bluffs on the north side, and a large clearing to the south and west. It is some eighty-five miles to Qu'Appelle station on the Canadian Pacific railway; from this point all our freight is drawn. The Dominion Telegraph Company has an office within five hundred yards of the agency buildings. A good district school is close by and a few of the older settlers are in proximity to the agency.

Muscowequan's reserve, No. 85, is situated nine miles from the Kutawa post office. The land on this reserve is not very attractive, being broken with small poplar and willow bluffs and ponds; the soil is rich and there are some fine tracts of land suited for farming.

Gordon's reserve, No. 86, is situated about twelve miles from Kutawa post office. The land is of very good quality. The greater portion of the reserve consists of bush, a good deal of which is of a dimension sufficiently large to make the best house logs, many small poplar and willow bluffs interspersed with ponds together with hay marshes the former taking up a large portion of the area, whilst the hay swamps are indispensable.

Day Star's reserve, No. 87, is situated six miles north of Kutawa. There is some very good farming land on the reserve. Two-thirds of the country is small poplar bush and sloughs, which are of no use in the wet seasons, but in dry seasons hay can be secured in abundance. The soil has very excellent qualities, but frosts are so prevalent that so far grain-growing has not been a success.

Poor Man's reserve, No. 88, is situated nine miles west of Kutawa. The country around here is rolling prairie, in some parts much broken by hills and sloughs. There are many large tracts admirably suited for farming, and the soil is of the best. Hay meadows are numerous.

Fishing Lake, No. 89, and Nut Lake, No. 90, reserves, are combined, under the name of the old chief, Yellow Quill. Fishing lake lies about 50 miles northeast of Kutawa post office. This reserve has a large area of arable land; much bush is to be found around the lake, with timber sufficiently large for building purposes, and the other part of the reserve is intermixed with poplar bluffs and prairie. The lake is large and affords fish, pike and pickerel.

Nut Lake reserve is some 40 miles north of Fishing lake; it is well wooded with spruce and poplar, some of which is very valuable, especially for building purposes. The lake is long and narrow and bounds the west side of the reserve; this lake supplies

fish, pike and pickerel. The country is well adapted for ranching; large hay marshes are plentiful.

Kinistino reserve, No. 91, is again some 50 miles from Nut lake. The trail between the two reserves is very rough and winding; it lies in a northwesterly direction from Nut lake, and is on the Barrière river. White spruce grows on this reserve, large enough for saw-logs. The soil is of a light sandy loam. There is a lake, too, with an abundance of pike and pickerel.

Tribes.—The Indians of Muscowequan's band are Saulteaux, with the exception of a few half-breeds. Those of Gordon's band are Crees, with the exception of some half-breeds. The Indians of Day Star's band are Crees. Poor Man's band consists of Crees, with the exception of three families of Saulteaux. The members of Yellow Quill's band are all Saulteaux. Kinistino's band is connected with the Yellow Quill band. These Indians are Saulteaux.

Vital Statistics.—The population of the Indians in this agency is as follows : 204 men, 224 women and 424 young people and children, making a total of 852.

The number of births during the year was 42, and the number of deaths 24; 15 Indians joined this agency, and 9 left it. Most of these cases were marriages, making an increase of 24.

Health and Sanitation.—The general health of the Indians has been very good, with the exceptions of some chronic cases of scrofula, which is more prevalent on Muscowequan's and Gordon's reserves, owing to intermarrying. The department's doctor was called, impromptu, to visit the schools, but the ailment was not of such a serious nature as at first anticipated. Bad colds with feverish attacks was the trouble. One girl pupil died this winter at Muscowequan's boarding school.

Sanitary precautions are strictly observed, and the Indians' houses are kept as clean as possible for an agent and farmers to superintend. The doctor on his rounds also inspects and reports. In the spring, especially, Indians are compelled to burn all rubbish accumulations and whitewash their houses, and make a thorough cleaning before moving out to live in tents; and last fall, before re-entering their houses, the same process was gone through, preparatory to living in the houses the past winter.

Occupations.—These Indians' time is occupied in the summer months at farming, putting up fences, haying, rounding up cattle, branding and castrating bull calves, working out for settlers and ranchers, freighting, hauling hay, repairing houses and stables, and hunting.

In the winter months these Indians are occupied principally in feeding and caring for their stock, cleaning stables, hauling hay and wood, cutting fire-wood, freighting, delivering hay and wood at the agency headquarters, and doing odd jobs, such as, repairing harness and breakages. The women engage in housekeeping, sewing, cooking, mending, washing, scrubbing and dressing hides. There is nothing they do not avail themselves of.

Buildings.—These buildings of the Indians are principally log shanties made warm and comfortable. The majority of these people only occupy their houses in the winter-time. The more civilized of them, such as one meets on Muscowequan's reserve and Gordon's reserve, have very creditable dwellings, being two stories high, made of logs 18 x 24 feet (approximately), with shingled roofs.

The stables on the reserves are half-pitch with sod roofs, others are flat roofs. They range from 16 feet square to about 30 feet square.

Implements.—Yearly the demand for implements is increasing. The Indians are becoming perfectly acquainted with their use. The great drawback of late years has been to get the power to run machinery. Oxen were too jerky, and the Indian pony worthless for work. Some good teams have been purchased this year, and the Indians are now commencing to find out the value of the same on a farm, and are using more judgment in driving and taking care of horses than heretofore.

Education.—Mrs. S. E. Smythe, teacher in charge of Day Star's day school, has 13 names on the register; the average attendance is very good. Mrs. Smythe is very

painstaking and her pupils are advancing steadily in their studies, and the sewing, knitting and mending done by them is most creditable.

Gordon's boarding school is under the auspices of the Church of England, and a committee appointed. Mr. Mark Williams is principal, and Mrs. Williams, matron. There are 24 names on the register. The school-house is a stone building, large, spacious and well ventilated. The pupils are kept scrupulously clean and well looked after in every respect. Mr. Williams has the grounds beautifully laid out with flower beds and a shrub nursery, also two large vegetable gardens, where he has always abundance.

It is to be regretted that Mr. and Mrs. Williams are about to resign their positions in the school, and the Indians are very much averse to their doing so, as they are both most painstaking, and carried order to perfection; at the same time the children are happy and contented; consequently the progress is good, and the parents more interested.

At Muscowequan's boarding school there are thirty names on the register. The Rev. Father Magnant is principal. The work of the matron is looked after by three Sisters of Charity, Sister Valade is the teacher. There are two lay brothers, one of whom attends to the boys, and one to the outdoor and farm work. The children are taught all the different branches on the model farm, worked by the boys under the lay brother in charge of them, and this farm is kept in splendid order, the crop being the best in the district last year. The school-house is a large stone building. There is good accommodation, and it is kept in the best of order; the grounds and gardens show the great care and attention they have received from those in charge; the boys are also taught how to care for stock. The brother is a good all-round farmer and mechanic, a valuable man to the school. Pupils attend school under Sister Valade, who is a very clever and painstaking teacher. Therefore, sewing, knitting, baking, cooking, scrubbing and all duties in connection with housekeeping are successfully taught the girls.

Fishing Lake school, on Fishing Lake reserve, is a new log building which has been opened under the auspices of the Church of England. The building is neat and comfortable. Mr. Andrew W. Anderson (a late pupil of Elkhorn industrial school) is the teacher. There was some difficulty at first to persuade the Indians to send their children, but I am pleased to say their aversion has been overcome, and the attendance is rapidly increasing. As the school was only opened in March last, little can be said as to progress.

Religion.—There are two denominations on the reserve, the Church of England and the Roman Catholic. Services are held in the two churches and three schoolhouses. The majority of the Indians are still pagans, but they keep their ceremonies very quiet, and have given up their past extremes.

Characteristics and Progress.—The natural inclination of Indians is towards indolence, but I am happy to say, there is yearly a more noticeable tendency to industry. As a race they are most law-abiding.

The Indians, generally, are becoming richer yearly, and better off in every way. The following are a few instances of success: Joe Iron Quill, of Gordon's band, started out on his own account, and has now a good two-storied house with shingled roof, about 30 head of cattle, 3 teams of work-horses, 2 double sets of heavy harness and one light set, 2 wagons, 2 sets of sleighs, and a crop of oats.

Willie Favel, of Poor Man's band, who started a few years ago in a small way, has a good two-storied house, with shingled roof, a heavy work team, about 30 head of cattle, mower, rake, wagon, harness, and a crop of wheat and oats.

Little Cree, of Nut lake, has all to go ahead with on a ranch, and there are several other Indians who are making rapid strides to better their past situation.

Temperance and Morality.—There was only one case of intemperance brought before my notice the past year, and this offender got severely punished for the same. One

woman was sentenced to six months in gaol for prostitution. These are the only cases that we know of.

I have, &c.,
H. MARTINEAU,
Indian Agent.

NORTHWEST TERRITORIES,
BATTLEFORD INSPECTORATE,
BATTLEFORD, August 2, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on the inspection of Indian agencies and reserves.

DUCK LAKE AGENCY.

On October 31 the management of this agency was transferred from Mr. W. E. Jones to Mr. James Macarthur. Inventories of all government property and of the Indians' live stock were made and, after being duly certified to, were transmitted to the Commissioner in duplicate.

The affairs of this agency have been well and capably administered; business has been conducted with promptness; the Indians have been restrained from incurring debts unnecessarily, and in general the policy of the department has been adhered to.

Mr. J. H. Price, agency clerk, deserves credit for the punctuality with which he has kept the office records entered up, in addition to his other duties.

BEARDY'S AND OKEMAHSIS' BANDS.

These reserves are under the direction of Mr. Price, who combines the duties of farmer with those of clerk.

These Indians are making good progress. Interest in agriculture grows. The crops show a further increase both in area and in product, the result of breaking up additional land of a better class than that which has been under cultivation for years past. One Indian of Beardy's band had last season over two thousand bushels of grain. The threshing was performed by the Indians almost without direction and in a manner most creditable.

The net increase in the Indians' herds is but small. This is due in part to the increasing draft for the Indians' beef supply and to the sale of all surplus fat cattle, but also in no small degree to losses upon the prairie through straying and accidents.

This reserve has fortunately an abundant supply of hay within its limits for the present stock, or even sufficient for a somewhat larger number. Consequently, the Indians have no need, as they have in some localities, to be alarmed on this account at the approach of settlement. In order, however, to prevent loss of cattle and at the same time to protect their own and their neighbour's crops, it is evident that the fencing of a portion of the reserve for pasturage is becoming imperative.

A noteworthy feature of the progress of these bands is the good conduct and industry of a half dozen boys, graduates of the Battleford and Regina schools, and a number of equally deserving girls from the Duck Lake boarding school. While much

credit is due to these young men and women and to the institutions at which they have been trained, yet it is clear that their success on the reserve is largely due to the wise counsel and kindly supervision of the officials in charge.

ONE ARROW'S BAND.

This band is located on a reserve six miles east of Batoche and fifteen miles from the agency headquarters on Beardy's reserve. Mr. Louis Marion continues in charge as farmer.

There is no material change in the condition of the band, whose livelihood continues to be derived in large part from hunting and the sale of senega-root.

Notwithstanding the addition of the season's calf crop, the net increase of cattle between March 1 and October 31 was only nine head.

The members of this band, which has figured prominently among Indians in the history of the west, are of almost pure Indian blood, and though not progressive in the industries, yet they make a fair living, and they are peaceful and law-abiding in almost every particular.

JOHN SMITH'S BAND.

At the date of inspection and until quite recently Mr. J. S. Letellier was in charge of this band. The reserve they occupy is located on both sides of the South Saskatchewan, about fifteen miles from Prince Albert.

Most of these people came from St. Peter's reserve, near Selkirk, in earlier days, and are half-breeds rather than ordinary Indians. They are thoroughly christianized and observe very generally the marriage laws of the country, the keeping of the Sabbath, attendance at divine service, and the other moral and religious customs of the land.

Agriculture and stock-raising furnish their main support. A few only engage in hunting and a few in freighting.

Farming has been fairly successful. An effort has been made to clean the fields of some very troublesome weeds with which they had become infested.

The Indians have derived a large benefit from their herds, and there is also a substantial increase.

The majority of the Indians of this band milk their cows and make butter, cultivate good gardens, keep poultry, and in fact employ much the same economy as white settlers. There is, however, much room for improvement in regard to the extent and thoroughness of the methods of cultivation.

JAMES SMITH'S BAND.

This band is composed of what were formerly two bands, namely, James Smith's and Cumberland, which occupied adjacent reserves at Fort à la Corne, and which by mutual consent were amalgamated in 1902, their reserves also being combined.

Mr. Horace Adams took charge of this reserve early in 1903. He is well qualified for his duties and should be successful.

Many of these Indians are hunters and can only with the greatest difficulty be induced to attend to their farms and stock, even during the season when closest attention is required.

The discouragements to grain-growing which have existed in the past, in remoteness from markets and want of gristing facilities, are now on the point of being removed in consequence of railway construction through the district, and the efforts of the farmer should now be attended with greater success than in the past.

In spite of the best facilities for stock-raising, the Indians' herds show no increase during the past year.

In other directions signs of progress are not entirely wanting. Several new houses of an improved description have been built. These are located in two sections of the reserve, convenient for attendance at the two day schools, which are reaping an advantage in consequence.

CARLTON AGENCY.

On November 30 the management of this agency was transferred from Mr. James Macarthur, who had been in charge since June, 1902, to Mr. W. E. Jones. The remainder of the staff is composed as follows : T. E. Jackson, clerk; Rupert Pratt, interpreter; John McKenzie, engineer and blacksmith; Joseph Savard, farmer on Ahtahkakoop's reserve; James Dreaver, farmer on Kenemotayoo's reserve; Patrick Anderson, farmer on Sturgeon Lake reserve, and Peter Villebrun, overseer and teacher on Meadow Lake reserve.

During November and December, a careful inspection was made of the reserves, schools and agency records, and a report covering three years, accompanied by statements and inventories, was submitted to the Commissioner in duplicate.

The agency buildings consist of dwellings for the agent, the clerk, the miller, and the interpreter, an office, a storehouse, a granary, a blacksmith's shop, and a stable. A furnace has recently been placed in the agent's dwelling. The buildings are in good repair, with the exception of the office, which should be replaced by a new one.

I found the office records for the most part in tolerably good order except that in connection with the store ledger there were numerous minor discrepancies between the balances shown there and those actually on hand. There was also a system of Indians' accounts which was quite in arrears as regards entering up, and required some days to complete.

The grist and saw-mills continue to be skilfully handled by Mr. McKenzie. A new engine and separator, which have recently been supplied by the department, should prove a great encouragement to farming throughout the agency, and the old engine, a cumbersome article, can now be left stationary in the grist-mill.

MISTAWASIS' BAND.

This band is under the immediate supervision of the agent. It is composed largely of half-breeds, who for many years past have been christianized and to a fair degree civilized. For a time they made considerable progress in developing their industries, acquiring property, and improving their dwellings. Latterly, however, with two or three exceptions, their condition has been one of retrogression. They have had considerable employment from the agency headquarters in the shape of freighting supplies and material for buildings, working on buildings and fences, hauling hay and wood, &c., and the whole effect seems to have been to divert their attention from industries of a more permanent character. A few have left the reserve in recent years to pursue a livelihood abroad.

There has been no improvement in the Indians' houses in the past three years. A few have moved from decent dwellings to houses of a poorer class.

The crop area has been reduced to about half its former proportions, but the land thus thrown idle has not been kept under cultivation.

The Indians' cattle show a net decrease in three years of forty-eight head, due mainly to disposing of cattle without replacing, and to replacing by purchase from other Indians, instead of outside the reserve, when none of the Indians had young stock to spare.

The agency saw-mill has again been operated for the benefit of this band, the cut amounting to upwards of seventy-five thousand feet. The demand made upon the Indians' time in connection with the sawing has, however, been made a pretext by them for neglecting to do any breaking or summer-fallowing, notwithstanding the urgent need for both. Unfortunately also, they value the lumber more for sale and for the temporary help afforded in this way than for improving their houses or other buildings. There is still a want of granaries and of shelter for implements as great as on reserves that have neither timber nor saw-mills.

The ex-pupils of industrial schools on this reserve have not been more than at the best, a very moderate success, in some cases a decided failure; but something better may yet be expected of them. In almost every instance they have lost three or four years before settling down to any definite mode of life. Two of Joseph Ledoux's boys are settled and working pretty steadily and are acquiring some stock and other property. In Jacob Badger, son of the late chief, there is a decided improvement of late, and he is likely to become a steady and industrious man. Willie Dreaver, son of the present chief, is a bright youth, but in the three years that he has now spent on the reserve since returning from school, he has accomplished nothing definite towards a permanent livelihood.

PETAQUAKEY'S BAND.

This band is also under the direct supervision of the agent. It is located on a reserve, at Muskeg lake, about 12 miles from the agency headquarters, which are on Mistawasis' reserve.

These people are all half-breeds and several of them speak English almost as well as Cree. They have been christianized for many years, and their appreciation of educational advantages is evidenced by the fact that as soon as their children arrive at six years of age the parents take them without solicitation to the boarding school at Duck Lake. Accordingly, at present every healthy child of school age is at school.

J. B. Lafond and his sons and the two Gray-eyes boys constitute the progressive element, and are fairly prosperous. Samuel and Daniel Wolfe, though good workers at times, require much direction and are going back, as are also a few others, in respect to their industries. It is true here, as in several other reserves, that the support they have failed to derive from their farms and stock they have obtained temporarily from rat-hunting, which has for a couple of years past been very profitable.

The cattle on this reserve number 100 head, and show neither increase nor decrease. There is no scarcity of hay and the cattle have been well provided for. At least 50 head more could be kept here conveniently.

AHTAHKAKOOP'S BAND.

This band is located on the reserve at Sandy lake, north of Mistawasis, the farmhouse being about 18 miles from the agency headquarters.

William McBeath was farmer until July 31, 1902, when he resigned and was replaced shortly after by Joseph Savard.

The band is for the most part of pure Indian blood. They are nearly all Christians and observe the various rites of the Christian religion, a few only still leaning toward the heathen dances, which are occasionally held among their less civilized neighbours.

Hunting has of recent years in this locality been very profitable, as the particular kinds of fur that are most plentiful have been in great demand. Chief Kalmeostotin returned in the middle of December from a four weeks' hunt, having killed during that time nearly $100 worth of fur besides a large quantity of meat. It is not surprising under such circumstances that the interest of the Indians in agricultural

pursuits should for a time be difficult to maintain. The acreage of cultivation has decreased and the product correspondingly. Garden products also are but small.

The fall continued very open until after New Year's and the Indians took advantage of the opportunity to hunt, neglecting to gather up their cattle. In consequence the inventory showed twenty-two head missing, some or all of which would probably be recovered. Assuming these to be on hand, there is still a decrease of seventy-three head in three years. The industry has not been a success.

The management of the reserve has been hampered for a few seasons through the swollen condition of the Shell river, which traverses the reserve. The difficulty has now been overcome by the construction of a suitable bridge, which was an urgent necessity and is a creditable work.

KENEMOTAYOO'S BAND.

The reserve of this band, commonly known as Big River reserve, is situated about fifteen miles north of Sandy lake. It is in charge of James Dreaver as farmer.

This is a hunting band, for whom a reserve was set apart in 1898 on their expressing repeatedly a desire to engage in farming. They are mostly pagans and show as yet but little interest in religion or education.

The houses, though warm, are but small, flat-roofed shanties. Although the sawmill has been operated for the older bands, who have sold a considerable portion of their lumber, yet these Indians have had no benefit from it even for the improvement of their houses.

Bridges recently constructed by the Northwest government over the Shell river and Big river on the Green Lake trail will greatly facilitate the management of this reserve.

The crop of 1903, though not threshed at the time of my visit, was well stacked and contained apparently between 400 and 500 bushels of grain. Considerable breaking and fall ploughing was done, so that this season's crop should be at least twice as large.

The cattle numbered sixty head and full provision was made for their wintering.

The farm buildings, including dwelling, storehouse and stable, together with the day school and teacher's dwelling, were all in good repair and whitewashed and present an attractive appearance, occupying as they do a delightful location, facing eastward and overlooking a beautiful lake.

STURGEON LAKE BAND.

This band continues in charge of Patrick Anderson, who was appointed to this position in July, 1898.

The band is located in two sections, one at the lower or east end of the lake, which stretches from west to east through the reserve, and the other from the Narrows to the west end. The latter is the more advanced and prosperous section, occupying more respectable and more comfortable houses. In all parts of the reserve, but particularly at the east end, where the main road to lumber camps and other northern points crosses the reserve at the foot of the lake, there are such opportunities at certain seasons for the Indians to get liquor that the farmer's watchfulness is scarcely able to prevent it. Mr. Anderson has, however, made a creditable attempt in this direction without fear of unpopularity with the Indians or others, and his presence has served to keep breaches of the law in this regard in check.

These Indians, with a few exceptions, are pagans and have very little regard for religion or religious services. On the contrary they engage in dances, incantations, and other heathen practices. The day school has been moved recently from a point outside, where it was poorly attended, to a central location within, while five children

are in attendance at Emmanuel College, Prince Albert, and it is hoped that in time the influences of education will be felt.

Grain-growing has been pursued with indifferent success and under the greatest discouragements on account of the difficulty in getting the agency engine and separator to the reserve, over forty-five miles of bad road, to do the threshing, and the want of any nearer threshing outfit which could be hired. In consequence their crops have more than once been fed in the straw, though there was good demand for oats at the lumber camps not far distant.

The Indians' cattle show a fair increase and they have for the most part been wintered securely, but only through the utmost vigilance on the part of the farmer in preventing the Indians from selling themselves short of hay.

Notwithstanding that there is large and ready demand throughout the fall and winter for all their surplus farm products, hay, grain, and roots, many continue to derive their chief livelihood from hunting and from teaming for the lumber camps and the traders to the north.

The farm buildings and surroundings show a marked improvement, not so much in what has been added as in the order into which things have been brought. The farmhouse is well kept and comfortable. There are convenient and comfortable house and cow-stables and poultry-house. There is a model branding corral, strongly built and furnished with three strong snubbing posts ; and a slaughtering corral adjoining with a windlass most conveniently constructed. The hay-yard and the farm garden and oat-fields are well fenced. All this is an excellent example to the Indians and has been provided with practically no cash outlay.

WILLIAM CHARLES' RESERVE, NO. 106A.

This reserve, which lies to the northeast of Sturgeon lake, to which it is almost contiguous, is also under the direction of Farmer Anderson, and is occupied by a few families belonging to William Charles' and James Roberts' two bands.

They are, like the bands to which they belong, a completely christianized class of Indians and live very respectably with the exception of one family in which both man and wife are degraded by the use of liquor, which they appear to have little difficulty in obtaining. Their children, fortunately, are at a boarding school, and are thus for the time removed from such influences.

Their chief livelihood is similar to that of the Sturgeon Lake band. They have a small herd of cattle, but there is practically no increase nor yet any benefit to the owners from beef or sales. Their industries have been thus far neglected.

WAHSPATON SIOUX RESERVE.

This reserve is located nine miles northwest of Prince Albert, and is setttled by about forty Sioux Indians, a portion of a band the remainder of whom occupy an encampment near the town.

They are nominally under the supervision of Farmer Anderson of Sturgeon lake, but practically they receive very little attention or direction except from Miss Baker, the missionary-teacher resident on the reserve, who is self-sacrificing in her efforts in their behalf.

These Indians receive but little assistance from the government, and what they have received, mainly in the shape of implements and cattle, they have made good use of. They continue to cultivate small fields and pay for the threshing of their grain. Their crops for 1903, mainly oats, amounted to five hundred bushels. Gardens have been cultivated and the product is sufficient for home use.

Their cattle, as yet only seventeen head, are handled with great care; losses have been slight; and they have already had some benefit from sales. The thoroughbred

bull supplied by the department has been stabled and cared for in a manner equal to the best of the Cree reserves.

About eighty remain at the encampment near town, and live by day labour in town and among the settlers of the neighbourhood. They earn enough to eat and to wear, but apart from this live very miserably. They have no school nor are they susceptible to religious influences, and the heathen dances which they hold occasionally and which are attended more or less by the Christian Indians of the reserve are detrimental to the latter. In relation, however, to the white population of the town and vicinity they are law-abiding and entirely inoffensive, while on the other hand their work is much valued by those who have occasion to employ them.

OTHER CREE BANDS.

Kahpahawekenum's band is located on a reserve at Meadow lake, about forty miles west of Green lake. As the name of the reserve indicates, there are large opportunities for cattle-raising in the vicinity. The band, however, numbers only sixty in all and have only recently manifested any desire to farm, having hitherto lived entirely by hunting. They are partially christianized and are under the spiritual supervision of the Roman Catholic missionary at Green lake. Mr. Peter Villebrun was appointed teacher and overseer to this band in January last.

William Charles' band has a reserve on Montreal lake, ninety-five miles north of Prince Albert. James Roberts' band has no reserve set apart as yet, but occupies for hunting purposes a large tract of country around Lac la Ronge on the northern border of Saskatchewan.

I did not visit these bands during the past year.

MOOSE WOODS RESERVE.

This reserve is situated about eighteen miles southwest of Saskatoon, on the south side of the river. It is occupied by about forty Sioux, the remnant of the band of the late Chief Whitecap.

The reserve is in charge of Mr. W. R. Tucker, who acts as overseer, teacher and missionary.

The population is somewhat reduced through deaths and through the removal of one family to the Wahspaton reserve near Prince Albert.

There is no noticeable change in the condition of these Indians. They continue to live, practically without assistance, by means of their cattle, their gardens, and the sale of wood and hay, there being good demand for these in Saskatoon.

The reserve was inspected on February 4, and the Indians were found very comfortable although the weather was unusually severe. Their cattle were in excellent condition, and there was an abundant supply of hay of prime quality on hand. Stabling and other shelter was sufficient and the calves were well handled and were in fine growing condition.

The beef steers, all three-year-olds, were sold in July, 1903, at $40.50 per head, the market being rather low at the time.

Each Indian beefs one steer or fat cow every fall, by direction of the overseer; and they do not ask, nor apparently wish, to kill more than the one animal in a year, depending for the rest of their meat-supply upon game.

The strength of the herd has thus far been kept up to two hundred head, but only with difficulty, as there are now only six working men and some of them scarcely to be classed as able-bodied.

The day school was closed for the winter months on account of the distance of the Indians from it, namely, from two to three miles. They were once near by, but of late years were obliged to move to a greater distance in order to be closer to their hay.

The results of school work on the reserve are very evident and very satisfactory. Nearly every young man and woman can speak and can write intelligently in English, and can make all necessary calculations.

ONION LAKE AGENCY.

This agency includes five bands of Cree Indians and one band of Chipewyans.

Mr. Wm. Sibbald is agent and has the assistance of L. G. Lovell as farmer and engineer, and Joseph Taylor as interpreter and carpenter.

The inspection was made during March, and the difficulties from deep snow and severe storms were greater than I have experienced at any other time.

The office records were complete and accurate with exception of the live stock book, which required considerable time to write up fully.

CREE BANDS.

For a number of years the five Cree bands of this agency were, for convenience in the management of their industries, located together on the two reserves adjacent to the agency headquarters, namely, Seekaskootch's and Makaoo's. There were, however, a considerable number of Indians who continued to live on their own reserves and who lived by the hunt. These are now engaging more or less in farming and stock-raising, cattle having been issued on loan from the agency herd. Others who dwelt for a time on the reserves at Onion lake, but who belong properly to the outlying reserves, have recently removed thither. This movement has been directed in the interest of the stock industry since the necessary hay-supply for a large herd of cattle is no longer obtainable in the immediate vicinity of Onion lake, a portion of the hay-lands which the Indians formerly utilized being now taken up by settlement.

Regularly settled on the reserve, engaging in agricultural industries, and exclusive of hunters, there are approximately as follows : on the reserves at Onion lake, 325 Indians, including men, women and children; at Frog lake, 55, and at Long lake, 40.

The only well-established industry among the Indians is cattle-raising, and some of the middle-aged who have been in training for nearly twenty years are very creditable stockmen and require but little direction, making provision of both feed and shelter for the winter in a thorough-going fashion and attending to their stock well in every respect.

The most unsatisfactory element are those who were formerly employed a great part of their time in the care of the agency herd and who grew into habits of indolence and of dependence upon rations. There are quite a number of these men, ranging from twenty to thirty years of age, and having had neither cattle nor other industries they are now being initiated in these and are a much heavier care to the agent than the other Indians, who show distinctly by contrast with these the results of years of training in connection with their own industries.

In the fall of 1903, the greater part of the agency herd was issued to the Indians, a considerable portion being allotted to the Indians just mentioned, who had spent some years for trifling remuneration in helping to maintain this herd for the benefit of the agency at large. The cattle issued, chiefly cows and heifers, had come through the preceding winter rather thin; they were very wild and suffered severely from occasional round-ups during the following summer, and particularly from the running involved during November and December in cutting them out of the bunch and bringing them to their various winter quarters. In consequence, they began the winter in such a condition that they required special care, which in some cases, as intimated in the last paragraph, they received, and accordingly came through safely, while in other cases there was a loss running up as hight as eight per cent.

The weather during the last haying season was extremely unfavourable; nevertheless there was a fair quantity of hay secured, and the loss of cattle was due rather to carelessness in handling the feed and in housing the stock than to scarcity of feed.

The Indians who deserve most credit in connection with the wintering of their cattle are, Alexis Crossarms, Sam Waskawitch, Young Chief, Albert, Pathagan, Meesechayo and Kaneepahtatayo. Some of these were able in the spring to furnish hay to less thrifty Indians, at $5 a load.

With regard to the cultivation of the soil, whether for grain, roots, or vegetables, there is absolutely no progress. The area under cultivation is diminished, partly from scarcity of good seed, and partly on account of the worn-out condition of a number of the old fields, which necessitated their being thrown out of use. The Indians fully believe in discarding old fields, but not in renewing them, nor do they seem anxious to replace them with new ones. The method in vogue among good farmers of cropping only one-third or one-half of a farm each season and cultivating and fertilizing the rest preparatory to seeding the following spring, has never been adopted here, nor has any attempt been made to adopt it.

No cultivated hay of any description is raised on these reserves. When the Indians are confined strictly to the limits of their reserves for their hay-supply, as they must necessarily be in the near future, the cultivation of hay, as well as grain and roots, will be an absolute necessity for the maintenance of their herds.

At the present time, though their cattle are quite insufficient for them to live by, and the product of farms and gardens is meagre, yet they are making a very comfortable living, supplementing the product of these industries by profits derived mainly from trips overland or by river to Edmonton, bringing back supplies for the agency, the Hudson's Bay Company, the merchants of Lloydminister, or the missions on the reserve.

Among the Indians settled on the reserves there is a gradual improvement in manners and morals, due largely, no doubt, to the influence of the missions, between whom and the officers of the department there is a cordial co-operation in all matters affecting the welfare of the Indians. Among those less settled, however, and passing between Island lake, Cold lake and Frog lake, there is an element of obstinate heathenism, still strongly imbued with its ancient superstitions.

The Indians' dwellings are of a poor description and continue from year to year with but slight improvement, notwithstanding that they have skill in dressing houselogs and in building walls, and have a saw-mill at the agency headquarters and a timber limit but a few miles away. This is partly due to the practice which has prevailed of moving frequently from one part of the reserve to another. Granaries and shelter for implements are also wanting.

SADDLE LAKE AGENCY.

There are included in this agency Little Hunter's, Blue Quill's, and James Seenum's bands, besides the Beaver Lake band of Crees and a small band of Chipewyans; the two latter bands inhabiting the country further north and living entirely by hunting and working on the Hudson's Bay Company's boats.

The agency headquarters are situated near the centre of the Saddle Lake reserve, and about nine miles from the Saskatchewn river.

The agency staff consists of G. G. Mann, agent; Miss B. E. Mann, clerk; Sam. Whitford, interpreter; J. Batty, farmer on Saddle Lake reserve; and P. Tomkins, farmer on Whitefish Lake reserve and agency engineer.

A new office, now on the point of completion, will afford many conveniences, the want of which has been much felt.

The inspection was begun on May 2.

SADDLE LAKE AND BLUE QUILL'S BANDS.

These bands occupy a large reserve, of varied physical features, affording excellent facilities for every branch of agriculture.

The Indians' dwellings and surroundings were inspected between May 9 and 13. On the 10th and 11th there was a heavy fall of snow and rain, the effect of which was extremely unfavourable to the cleanliness of the houses as well as to the progress of the spring work.

The women were generally well occupied, in some instances removing potatoes from the cellars and sorting them over preparatory to planting.

The cellars here, as everywhere on the reserves, require to be larger and deeper and to have better provision for ventilation. As they are at present, they become too warm at times and roots keep but poorly.

Apart from this, the houses continue to improve and about one-third of them are of a very respectable class.

Small-pox visited these bands during the fall and winter. It is thought to have been introduced by a non-treaty Indian coming from the neighbourhood of Battleford, where the disease had been prevalent on some of the reserves. A few deaths occurred and the reserve was quarantined from early in January to the end of March, when, after a thorough process of disinfection, the quarantine was raised.

Notwithstanding the sickness and quarantine, the Indians were able to attend to various domestic duties during the winter, to provide fuel, to haul hay, and to attend to their stock, and in addition to cut in all upwards of 15,000 rails and tamarack pickets for fences, which were put up as seeding went on and were completed by the end of May.

Regarding fences I may add that I find them at present, as on several former visits, particularly strong and substantial, both here and at Whitefish lake. They are such as would be a credit to any farm, and the Indians' crops seldom suffer from any defect in this regard. One Indian, not satisfied with rails, has just completed the fencing of a thirty-acre field with wire.

The cattle wintered with but slight loss, though they came through much thinner than usual. The stock of the Indians individually is with a few exceptions so small that it is but a trivial matter for any able-bodied man to make necessary provision and properly care for his cattle.

The Indians are fairly well equipped with farm implements, having at the time of inspection nine new combined ploughs besides several breaking and stubble ploughs supplied by the department some years ago but still serviceable; also thirteen sets of iron harrows, three sets of disc-harrows, one grain-drill, three binders, fourteen mowers, thirteen rakes, and thirty-three wagons.

Last season fifty-five acres of new land was broken and a few acres of fall ploughing done. This land was carefully put in this spring and in good time, while further ploughing was done in the spring for oats and barley. A good deal of the seed had to be bought, as only a few had raised grain fit for seed, and they had sold during the winter, though at a compartively low figure, all above their own requirements.

There is a great scarcity of working teams, especially oxen, the stock having run down while the need for them is increasing. The want will be partially supplied by the action of the department in authorizing the purchase of a few teams for ex-pupils of the schools.

The thriftier class have done no hunting this spring, chiefly on account of the fall during the winter in the price of furs, particularly rat-skins. Moreover, the opportunities for profitable employment outside the reserve have been more numerous than every before, and are tending to divert attention from agricultural pursuits as well. Six men have been engaged on survey parties during the earlier part of the summer at from $30 to $35 per month and board. The services of those familiar with the river, of whom there are many, are in demand as pilots. A few of the most

prosperous, however, namely, Thomas Hunter and his sons, Thomas Mahkokis, Augustine Steinhauer, and Peepeekeesis, support themselves mainly by their own industries and seldom work abroad.

JAMES SEENUM'S BAND.

This band is located for the most part on the Whitefish Lake reserve, a strip of land lying along the east shore of the Whitefish and Goodfish lakes. A few, with a view to farming, have moved recently to Saddle Lake reserve, of which these Indians are joint owners with the bands settled there.

The inspection occupied from May 17 to 20. The weather was fine and favourable in every way. A large number of the Indians had moved into their tents for the summer, but those houses that were still occupied were clean and well kept within and around. One good house, which was in course of construction in June, 1903, is now completed, and further improvements to houses are in progress.

The crop area is diminished and part of what is sown is so late as to have little prospect of maturing. This is on account of the failure to prepare land last season, and also because seed grain had to be freighted in over miry trails at a time when it should have been in the ground. In a few cases in which the Indians had saved good seed it was sown in reasonably good time, although on spring ploughing, and at the time of inspection the grain was well above ground and was very promising, as the season though opening late has been most favourable for rapid growth.

The band is but poorly equipped with farming implements as well as with work teams.

Among those who have removed to Saddle lake are some of the best farmers on the reserve, namely, Enoch Wood, Lazarus Shirt and Charles Jackson ; and their removal appears to be in their own interest as well as in that of the band, provided the lands formerly cultivated by them are now occupied by others, since good farming locations are scarce on this reserve on account of the broken character of the surface.

The Indians' cattle are not numerous. Chief Pakan has twenty-one head ; seven other Indians have between ten and twenty head each ; ten have between five and ten head ; while twenty-five have less than five head.

Feed was scarce and the cattle wintered but poorly and were thin even at the end of May.

A number of the younger and middle-aged men occupy themselves during summer working on the York boats out north, and during the spring and fall with hunting.

BATTLEFORD AGENCY.

This agency comprises seven bands occupying as many reserves, at distances of from twelve to thirty-five miles from the town of Battleford, near which the headquarters of the agency are located.

The inspection was made during June and July.

The agency staff is composed as follows : J. P. G. Day, agent ; C. J. Johnson, clerk ; Solomon Desjardins, interpreter ; and five farmers, who will be mentioned individually in connection with their respective duties.

While the different reserves will be treated separately below, it may be remarked here regarding the agency in general that the Indians live almost solely by farming and stock-raising, as there is practically no hunting in the district, and they have little employment as rivermen or freighters.

In the interest of the cattle industry, a step is being taken this season which cannot be too strongly commended, in the construction on each of the seven reserves of a fence inclosing from four to nine square miles of excellent pasturage. The area thus inclosed will aggregate about 20,000 acres for the agency, and will afford an

average of about ten acres per head of the stock to be pastured. It may be calculated that by pasturing the herds in this way losses in cattle and waste of time in rounding up cattle to a value of several hundred dollars annually will be saved. The fences will be of wire except that on Sweet Grass reserve, which is completed and is of rails. With the possible exception of the Stony reserve, the entire expense will be borne by the Indians.

MOOSOMIN'S BAND.

Moise L'Heureux has been in charge of this band as farmer for the past three years.

Apart from small-pox, which visited the reserve during the winter and from which two deaths resulted, the health of the band has been unusually good.

There has been no improvement in house-building for several years, and there is only one respectable house on the reserve. As the Indians were all in tents, the interior of their houses was not examined.

There is a considerable decrease in the crop area, due mainly to scarcity of seed. Moreover, here as elsewhere throughout the agency, much of the seed used, particularly oats, was of poor quality and will give a medium or very light crop, even on ground which otherwise would give a good one.

The grain for the most part appears to have been sown in good time; considering that the spring was backward, and growth having been rapid, the grain bids fair to be ready for harvesting in good season.

A few of the oldest fields are in the worst need of thorough fallowing, or failing that, of being discarded entirely ; but no fallowing nor breaking of new land had been done on July 13, when I made a second visit to the reserve.

There is five acres of very fair brome hay at the farm, and one Indian, Estowewesick, has a similar field from seed which he procured at his own expense two years ago.

Gardens are still badly neglected both as to the preparation of the soil and as to its cultivation during the season of growth.

Grading for the Canadian Northern railway began on this and Thunderchild's reserves early in July, and owing to the employment incidentially afforded to the Indians in connection with the work, it has proved difficult to maintain interest in farming since that time. However, all summer ploughing, both breaking and fallowing, should have been well advanced or completed by the middle of July, especially on our reserves, where treaty mayments, coming on as they do about that time, are frequently taken as a signal to terminate such work, whether finished or not.

THUNDERCHILD'S BAND.

This band occupies a reserve immediately west of Moosomin's. William Dewan is the farmer.

Last season's crop was poor, and, such as it was, it was mostly disposed of during the winter, without permit, leaving a scarcity of seed in the spring. There is on this account a heavy decrease in the acreage of crop. The wheat is well advanced and promises a good return. The oats are thin and poor on account of poor seed.

Of the large area thrown idle this season for want of seed, only a few acres has been fallowed, while the rest is growing rank with weeds.

SWEET GRASS BAND.

The reserve of this band is situated on the south side of the Battle river, eighteen miles west of Battleford.

Adolphus Nolan is the farmer.

These Indians attend to their industries with much regularity, and consequently are receiving good returns from them. Last season's crop, though not good, was not a failure and gave a fair profit. This year the crops look well except that some fields are infested with weeds, which should be destroyed without further delay. While, as on all the other reserves of the agency, there is a decreased area under crop, yet here forty or fifty acres of the vacant land has been ploughed, and if harrowed occasionally during the summer and fall, will be in good condition for sowing early next spring. There is a four-acre field of brome, the seed from which may be used for seeding down some worn-out and dirty fields which are no longer fit for cropping.

The cattle wintered well and are now in good condition. For convenience the herds of the twenty-one owners were grouped in six bunches during the winter, a plan which has continued to work well here, though it has frequently proved a failure elsewhere on account of the opportunity it affords to lazy men to shirk their share of work and responsibility.

The Indians' gardens are fairly well kept, but will not be as productive as they should be for want of the use of manure in the preparation of the ground. The farmer's garden consists of a very fertile piece of land, but its condition in other respects is by no means an example, and is an evidence of lack of interest in the subject.

These are no longer the dependent, begging Indians they were only a few years ago. They live comfortably, and with the exception of a few of the old and helpless. they provide themselves with everything they require. An Indian, Achanum, recently had his boy home for a week's holiday from the boarding school. He returned him promptly at the expiration of the term of leave, nor did he send him back stripped of the best of his clothing, as frequently happened in former times, but he provided the the best of his clothing, as frequently happened in former times, but he provided the boy with a complete new suit in addition to the clothes he wore on coming home.

POUNDMAKER'S AND LITTLE PINE'S BANDS.

These bands occupy adjacent reserves, situated on the Battle river, about thirty-six miles west of Battleford.

S. Warden is in charge of both.

These Indians take considerable interest in farming, and the condition of their crops is much the same as on Sweet Grass's reserve. Though the acreage is small, the yield is likely to be rather good, and the majority of the Indians are now practically assured of a liberal supply of flour for a year to come, besides considerable grain to sell, both wheat and oats.

As a fair indication of the rapid progress of these bands in agriculture during recent years, I may mention that, notwithstanding that last season's crop was a partial failure, the entire issue of government flour to the two bands was only sixty sacks, while for the year ended June 30, 1899, the issue amounted to five hundred and fifty sacks; and I may add that the Indians were complaining then more than they are now regarding scarcity of food.

Here again the cattle wintered badly. There was some loss of hay through fires in the fall, and feed ran short early in the spring. There was, in consequence, a loss of a few cattle, and had it not been for the careful saving of the season's straw for such an emergency, the case would have proved much more serious. The effects of insufficient protection for the stock against the severe cold and storms of February and March were apparent even in June.

The farmer's garden was well cultivated and in every respect a model. The Indians' gardens are from medium to poor and in every case show the want of fertilizing and otherwise properly preparing the soil.

These bands took up the idea of fencing pasturage for their herds with great enthusiasm and were but a few days in putting down fifteen miles of posts ready for the wire.

RED PHEASANT'S BAND.

R. Jefferson is in charge of this band as farmer.

Their reserve is located on the Eagle hills, twenty miles southeast of Battleford.

Two new houses of a distinctly improved description have been built. This is the only reserve in the agency that shows any progress in this respect during the year. More may, however, be expected during the coming year, as some 75,000 feet of lumber were cut by the Indians in May and June with the saw-mill supplied recently by the department. The logs were obtained and the sawing done at Birch lake, fifty miles north of Battleford.

The crops are fair; but better methods of cultivation are needed before good results can be had; and the acreage is entirely too small.

In gardening there is the same defect as has been noticed in connection with the other reserves; the ground is too poor. The farmers know the value of manure and use a dressing for their gardens amounting to forty or fifty tons to the acre, while the Indians use none. A few of the gardens on this reserve were in a very creditable state as regards the cultivation of the surface.

There was here also a slight loss in connection with the wintering of the cattle, although only a few of the Indians were actually short of hay, while some had hay to spare. The hauling of feed during the latter part of the winter proved a great hardship to men and teams.

Headman Wattannee died on July 8, and was buried on Sunday the 10th. For some years he had been feeble and had taken but little interest in the affairs of the band, but in former times his influence among his people was valuable, and he was held in much esteem and reverence by them. In company with the agent and farmer I attended the funeral of the deceased headman. His seven sons and five daughters were present, and the funeral ceremonies were carried out at the tent, at the mission church, and at the grave, in every respect in a most becoming manner, and quite after the customs of white communities.

STONY BAND.

The reserve belonging to this band lies immediately west of Red Pheasant's and is also under Mr. Jefferson's direction.

The band consists of twenty-two families, whose dwellings are situated in a group, which with garden plots and cattle corrals covers about a quarter-section of land.

There is no noticeable change in the condition of these people since my last visit. They adhere very obstinately to their old ways. They are practically all heathens, but there is reason to hope for a change in their attitude towards religion and education from the efforts of Mr. Leffler, a teacher who has just now arrived to take charge of their day school, and who seems qualified to gain their confidence and to interest them in some things that may tend to their uplifting.

They have practically no crop this season, nor have they made any preparations for next season's crop. Their gardens, however, are clean and somewhat better than those of the Crees.

The cattle of this reserve are the fattest in the agency. This, however, seems to be due not so much to superior care in wintering as to the large percentage of dry cows in the herd, which winter easily and fatten quickly. The increase for the season will be extremely small, not more than thirty per cent of a full calf crop. This is due to lack of herding during the past summer, and is merely a repetition of former experience on this and other ranges. It is hoped the provision now being made for a pasture-field will overcome this constant loss.

I am at present engaged on my report to the Indian Commissioner on the inspection of the Battleford agency, on the completion of which I expect to return to my headquarters at Prince Albert and to further work in that vicinity.

I have, &c.,

W. J. CHISHOLM,

Inspector of Indian Agencies.

REPORT OF INSPECTOR FOR TREATY No. 8.

OTTAWA, October 12, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour herein to submit my annual report of Treaty No. 8.

I left Edmonton on May 4 for Athabasca Landing, about two and a-half days' journey. After completing arrangement here, I left with the party for Lesser Slave lake on Bredin & Cornwall's transport. I had engaged a pack train to meet us at the end of the lake, but, on reaching there, found that the ice in the lake was almost clear. I immediately made arrangements to cross the lake by boat, and, after a wait of two or three days, got fair wind and sailed across. This was the first time that the Indians had ever seen the ice out of the lake at that season of the year.

We arrived at Lesser Slave lake on the 17th, then made ready to cross the portage, the trail being in horrible condition. Four good business horses with the ordinary lumber wagon were stuck, with between seven and eight hundred pounds of freight. We were met there by one of the firm, Mr. Roberts, and aranged with him to take the greater part of our freight across on pack horses. We arrived at Peace River Landing on the 26th, and engaged transportation from Bishop Grouard on a mission steamer to Fort St. John, which place we reached on June 2, making the trip in four days of actual running. We settled with the St. John Indians and several new ones coming into the band. I found the Indians here not in a very healthy condition, as a large number were afflicted with scrofula. However, they are very independent and do not care about coming into treaty.

We reached Dunvegan on the 7th and made payments to the Indians. These Indians are also rather sickly, and quite a number of them old, decrepit and unable to work. Now that the white man is going into their country, they want to build houses and cultivate their ground and want tools to work with—carpenter's tools and gardening implements—as they say they wish to raise a few potatoes, which would add considerably to their comfort. They are perfectly satisfied to live in the old way, but now, since game is not over-abundant, they will have to think about tilling the land. I advised that the best thing they could do would be to raise a few vegetables to commence with. I would recommend that the department furnish garden implements and a tool chest.

On the 8th we arrived at Duncan's band, Peace River Crossing. There the Indians have made good progress and the headman, Duncan, has a number of cattle and horses and last year had thirty or forty acres of grain sown ; unfortunately the grain was sown a little late in the season, and the drought prevented him from having a very good harvest ; nevertheless, under the conditions he had a fair crop. The Indians received their annuities here on the 9th. They are anxious to have their reserve, already staked out, surveyed.

On the day appointed we arrived at Vermilion, where we met the Crees, Slaves and Beavers. These Indians live by the hunt and are very healthy and well-to-do.

Fur was plentiful and there was no real want amongst them. The Crees of Little Red River were very successful this year and are very healthy, there being no epidemics amongst them.

We arrived at Fort Chipewyan a day late and found the Indians all in, and settled with them. They were also in a healthy condition. Reindeer and fish were both plentiful, so they had sufficient food. The Indians at Fond du Lac were very much worked up over the close season for beaver and other game, but, after hearing an explanation, were satisfied. They had an abundance of dried meat and the lake afforded them plenty of whitefish. Taken on the whole, they were the best dressed lot of Indians in my inspectorate.

We left Fond du Lac for Fort Smith, where we arrived a day before the day appointed. The Indians here were healthy and had plenty of dried meat.

From Fort Smith we took transportation with Hislop & Nagle's steamer for Resolution. We met the Indians here two days before the time appointed. There were three bands of Indians here, viz.: Chipewyan, Yellow-knives and Dog-ribs.

We then went to Hay river and met the Slaves. These Indians, though probably not as strong physically as some of their brothers, are very energetic and have productive gardens, which add much to their comfort. They also had plenty of fish this season.

We crossed back to Resolution with the York boat of Messrs. Folk & Swiggart. We had very stormy weather in the far north, in fact the wildest that I have seen north of Fort Smith. We engaged passage with the Hudson's Bay Company transportation steamer 'Wrigley,' and travelled south, arriving at Fort McMurray, August 10. We settled with the Indians here. There were three families of McMurray Indians at Isle à la Crosse, who had small-pox, and I thought it better not to allow them to come into camp, but to remain a little distance down the river, where I had food sent and paid them their annuities.

Owing to the prohibition of beaver, I think it would be well to make the payments to the Wabiscow, Whitefish lake, Sturgeon lake and Lesser Slave lake Indians in the fall, which I could do on my way out from McMurray. The journey could be made with Peterborough canoes by the Peigan river to Wabiscow, and from Wabiscow to Sturgeon lake by pack horses. I could get back some time in the latter part of October or early in November.

The supplies furnished by Revillon Frères, especially the bacon, were of very good quality.

I have, &c.,

H. A. CONROY,
Inspector, Treaty No. 8.

MANITOBA AND THE NORTHWEST TERRITORIES,
OFFICE OF THE INDIAN COMMISSIONER,
WINNIPEG, October 22, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my report upon Indian affairs in Manitoba and the Northwest Territories for the past year.

When the government assumed the management of Indian affairs in the west it had to organize an elaborate system for rationing the Indians, who by the changed conditions were deprived of their natural means of support, and had to become adapted to the altered circumstances before being able to provide for themselves. To-day we

have reached a stage at which the Indians of the mixed farming districts, who are able-bodied, are practically self-supporting, and our rationing is being largely confined to those who are destitute through age or infirmity. We must be prepared to continue provision for this class either by the appropriation for relief or, as is done in the Qu'Appelle agency, the producing on agency farms of the food-supplies necessary for the destitute. There are agencies, particularly in Saskatchewan and Northern Alberta, in which there is still room for reduction in food-issues ; but when it is remembered that the estimates for relief last year were reduced $20,000 below those of the preceding year, it will be evident that there is over the whole territory a marked advance in the direction of self-support. Attention having been called to the fact that a considerable portion of the provisions provided for the relief of the destitute was being used in payment for work at agencies which should properly be chargeable to management, and as it was considered that the practice tended to pauperize the Indians and was a misuse of the appropriation, instructions were issued that it was to be discontinued, and that agents were to estimate under the head of general expenses for necessary work, and when Indians were employed to do work to pay them the going wage in cash instead of remuneration in the shape of food. In mixed farming districts it was much easier to do away with the old system of free rationing than in the ranching country in Southern Alberta ; but I am glad to be able to report that a very marked advance has been made in the direction of self-support upon the Blackfoot, Blood, Peigan, Sarcee, and Stony reserves. We have purchased beef from those Indians on these reserves who had marketable steers to dispose of, paying them five cents a pound and feeding the beef back to them free, irrespective of their material condition and physical capacity for labour. Some of them had accumulated money and had large herds, but the difficulty in dealing with the situation was that, if the progressive Indian were cut off from free rations, the non-progressive would be encouraged in idleness by regarding the cutting off of the others as a fine imposed on advancement. At conferences with these Indians the matter was discussed, and an offer was made to pay those Indians who undertook to support themselves the going price of beef, instead of the arbitrary price of five cents a pound, and it was shown that their increased earnings through the increased price would really more than compensate for the cutting off of free rations.

There was some doubt as to the Blood Indians, the largest band in the west, voluntarily giving up the rations which had come to be regarded as a treaty right. Last March, however, a number of heads of families agreed to adopt what is known as the self-support plan. In that month payment was being made for beef supplied, and the heads of those families handed back to the agent $50 each, which was to go to their credit on the meat account, undertaking at the same time to turn in animals to be butchered for themselves after June 30. To-day on the Blood reserve there are twenty-five men, with seventy-five women and children dependent on them, who are self-supporting; 166 men, with 362 dependents, are partially self-supporting, and we are supplying full rations to only 574 men, women, and children out of the population of 1,200 on that reserve. The earnings of the Blood Indians for the year ended June 30 from the sale of beef, hay and ponies, freighting, and the mining of coal, which last is carried on by one Indian and his son, amount to $36,154.78. Last year 900 heifers were supplied to the Blood Indians to complete the number of cattle which the treaty provided should be supplied them, but which were not given for the reason that many of the Indians refused to take cattle. These men, seeing the advance made by the cattle-holders, have changed their minds.

A similar system is in operation on the Blackfoot reserve. It is working well. The gratuitous issue of beef for the past fiscal year was about 280,000 pounds less than the issue of four years ago.

On the Sarcee reserve there has been developed among the Indians such an interest in cattle that special provision was made this year to supply heifers to those who had previously refused to consider the taking of cattle.

On the Stony reserve the system has been put in operation, and there are now forty families on the self-support list. The gratuitous issue of beef on this reserve for the three months ended September 30, 1903, was 34,737 pounds; for the three months ending September 30, 1904, the issue only amounted to 17,463 pounds. Eight Stony Indians have been employed on surveys at from $35 to $40 a month with board. At present others are earning $4 a day hauling material for the bridge being constructed by the Territorial government across the Bow river at the reserve.

On the Peigan reserve there was in the six months ended June 30, a reduction of 22,195 pounds in the gratuitous issue of beef.

While a review of the work discloses discouraging features at certain points, there are striking examples of energy and thrift on the part of Indians all over the country. On Beardy's reserve one Indian last year raised 2,000 bushels of grain. Some of the best wheat brought into Regina for shipment last year was raised by Indians on Piapot's reserve; 2,389 bushels of grain were threshed last year by one of the young Indians at the File Hills colony; this year he had 112 acres in crop. Alexis White, who married and settled on Ermineskin's reserve eight years ago, has by his own efforts put himself in the position of an independent farmer. After wintering his thirty-five head of cattle he had fifty tons of hay, which he sold in the spring in Wetaskiwin at a good price. In his report for the year, Agent Carruthers writes thus of the Indians on Côté's reserve:—'I consider them, taking them as a whole, the most industrious, law-abiding band I have come in contact with; they never let a chance slip by of earning money; they are most willing to advance themselves; as an example of this, a number of them subscribe for an eastern paper and for Manitoba monthly agricultural papers. I attended a concert in their school-room about New Year's, where about two hundred of as quiet, well-dressed, orderly people, as one would wish to find were present.' Chief Côté and a number of his Indians visited the Winnipeg exhibition, as did Little Axe and a couple of members of the Blackfoot band. Some of the Blood Indians availed themselves of the recently established sugar-beet industry, and earned over $2,000 in topping and hauling beets to the factory at Raymond. John Tanner, who lives on Gambler's reserve, had a crop of eighty-one acres, has twenty-five head of cattle, eight good farm horses, hogs, barnyard fowls, a full line of agricultural implements, and is part owner with white farmers in a valuable syndicate stallion. Sinquish, one of the group on Côté's reserve who some years ago were given unrestricted control of their property other than land, has so well administered his affairs that he this year, of his own initiative, erected a large two-and-a-half story frame house.

The time has come when special care should be given to the improvement of the dwellings of the Indians. At points there has been in recent years a betterment; but a general review of the reserves in the west compels to the conclusion that further improvement in housing might be made.

The extension of railways through the west has afforded a market for produce to Indians whose reserves were previously so far from centres of population as to make it impossible for them to dispose of anything that they raised beyond what was necessary for their own support. Others were at such a distance from railways as to make the hauling of grain a severe tax upon them. The Indians of File Hills had to haul their grain forty miles for shipment, but now the Kirkella branch of the Canadian Pacific Railway extends along the southeast boundary of Peepeekesis reserve. The extension of the Manitoba and Northwestern passes through the Nut Lake reserve. The main line of the Canadian Northern Railway passes through Côté's reserve, Fishing Lake reserve, and Moosomin's and Thunderchild's reserves. On Côté's reserve there is a terminal point, and the town of Kamsack has been founded. The settlement of the country makes it increasingly difficult for Indians to make a living by following their own mode of life, but the opening up of new markets and the accessibility of shipping points, enable them to dispose more readily of the products of their farms.

The leading of the Indians into the way of self-support necessitates a larger expenditure for management while reducing the volume, and therefore the cost of free

rations. It would not be economy to stint the expenditure where there is evidence of results which in a measureable time should admit of large and permanent economy. At the same time care is to be exercised lest the expenditure should become too high, and the Indian made too dependent by too close and continuous tutelage.

Vital Statistics.—The total population in Manitoba and the Northwest Territories within treaty limits, at the close of the fiscal year was 24,336. As there were 800 births and 709 deaths during the year, it is apparent that the birth-rate has considerably exceeded the death-rate.

In the death of Mr. Alex. McGibbon, who was inspector at Calgary, and of Mr. J. Arthur Leveque, who was inspector at Qu'Appelle, and Mr. W. E. Jones, who was agent at Carlton, the service has been deprived of three conscientious and capable officials, who were devoted to the work of advancing the aborigines.

Education.—It is difficult to add much that is interesting to what has been said in prior reports. The same policy has been carried out in regard to all kinds of schools and on the whole appears to be the best.

Day Schools.—I am not very satisfied with the standing of a certain number of the day schools. It is almost useless to repeat the reasons therefor. In the first place not only are the parents obliged to be away from the reserves at various times, for very legitimate purposes I must allow; but when at home, they take little interest in the schools, and needless to say, the children are even more indifferent. The salary paid to the teachers on reserves may have been large enough some years ago, but those days are ended and there is so much lucrative work to be found all over this western country that the remuneration offered will scarcely tempt good, qualified persons to engage in teaching Indian schools.

Boarding Schools.—Respecting boarding schools, I wish to say in particular that they are all, or mostly all, in splendid condition. For one thing, the recruiting has been good, and they have almost without exception the full number of pupils provided for, and in some cases above. I may add that some of our buildings have more accommodation than the number paid for can occupy; and in some cases where pupils are offering, it would seem advisable to increase the per capita grant number.

Our inspectors have reported very favourably in most cases as to efficiency of staffs, teachableness and behaviour of pupils, and upon general questions respecting management. In a few cases, however, the equipment of schools is deficient.

The sites of some of the buildings seem to have been selected without proper regard for either water-supply or drainage. I need not mention any school in particular, but I have urged improvement in several cases in regard to fire-protection. The question of expenditure in this connection is one that should concern the school authorities as well as the department. From year to year I have asked from the government such help as appeared to be justifiable, but the schools ought to find the means of supplying part of the requirements.

The training of the children in perhaps half of these schools may be said to be almost equal to that given in the industrial schools. Especial attention is paid to agriculture, which, it must be remarked, is the most likely outside training for children who will eventually return to their reserves, where tinsmithing, printing and the like will be of little use. All vegetable stuff is grown on the premises and the children are amply provided in this respect. The pupils also look after live stock of different kinds from horses down to poultry, and are prepared to attend to similar duties after their discharge.

The Indians naturally prefer to see their children near them, either on or near their reserves, and consequently object less to their admission to boarding schools so placed than to have them sent away to the larger schools. However, I think I have succeeded in a fair measure to further the desire of the department by removing a number of them from boarding to industrial schools, when they attain a certain age. I may say that I have noticed of late more co-operation from the principals of boarding schools in this regard, which is probably due to the influence of the higher church

authorities, who from time to time have been asked to use the same for the benefit of the industrial schools as well as the individual pupils.

In several cases during the year where conditions were favourable, the number of pupils was increased slightly, whilst one new school was opened at Fort Resolution. One important change in course of being carried out is the closing of the St. Boniface industrial school, to be replaced by several boarding schools on reserves ; this substitution only awaits the completion of certain boarding school buildings. I have paid particular attention to these buildings and have insisted that, consistent with the experience of the past, proper attention be paid to a plentiful water-supply, proper drainage, facilities to protect pupils against fire emergencies, adequate heating apparatus, and, in general, good and safe quarters.

Industrial Schools.—Of these there are four in Manitoba, six in the Territories, not including Emmanuel College at Prince Albert, the boarding school at Duck Lake and St. Albert Orphanage, the three last being practically industrial schools.

In all of these the class work is of a superior character relatively, and the persons charged with the teaching are exceptionally capable to do justice to the work ; they are trained for the purpose and as a rule enthusiastic in their work. The children in certain branches of study succeed well, better possibly than white children, whilst in others they may not be quite as much at home. Their perceptive faculties are more acute than those of white children, whilst they do not think as deeply or as accurately; or in other words, they live more in the concrete than the abstract. Higher mathematics or reasoned morals would not appeal to them, whilst handiwork, writing and drawing come to them naturally. The teachers have to distribute their efforts so that some equilibrium may be established between the strong and the weak qualities. This duty requires some experience, very much the same as with white children. Creditable Indian teachers have been turned out of our schools, although as a rule a white teacher has more influence on the young Indians.

The children take well to outside work and succeed well in carpentry, blacksmithing, &c. There have been a smaller number of trades taught of late, owing to the fact that most of the pupils are to go back to reserves, where this training would be of little use. The girls are taken special care of and are trained mainly as housekeepers. They are in demand among white people, but the greatest care is needed to have them placed with respectable families. We prefer to have them married to respectable ex-pupils and settled on reserves.

The conduct of the pupils is good when at school, with very few exceptions, and the majority continue well-behaved after discharge. Of course, as may be expected, there are some serious lapses.

The standard of health is fair, but I am sorry to say that we had to go through small-pox and measles at several schools. It has interfered with the work; but, fortunately, very few deaths occurred. Our greatest trouble is with tuberculosis. I am afraid it will be some time before much can be done to eradicate the disease. All preautions needed are taken; good ventilation, plenty of open air, good food and clothing and general cleanliness; but many of them have scrofula, which develops into consumption. The medical attendance is generally satisfactory; the principals being well satisfied in this respect.

There is plenty of accommodation in the industrial schools, as the place of discharged pupils is not so easily filled as formerly by new comers. I have already pointed out the unwillingness of the parents to let their children go a considerable distance from their abode. They cannot conveniently visit their children, and vice versa, on account of the expense. I may say, however, that the recruiting has been somewhat better than in former years, due partly to transfers from boarding schools. The industrial schools are doing excellent work and I hope the transfer, especially of boys, to them from boarding and day schools, will increase.

I have regretfully to record the calamity that befell the main building of the Qu'Appelle industrial school, which was burnt down at the beginning of January last.

Nothing of the building remained standing. The rescue of some of the children was done under the greatest difficulties, and at least two members of the staff nearly lost their lives in this generous work. Happily, nobody perished and save for a considerable shake up, no bodily harm was experienced.

The building was considered well provided for in regard to fire-protection and escape, but was very inflammable, and the fire, starting almost at the centre of the ground floor, was all over the structure in a very few minutes. Fortunately, the fire took place at noon; if it had been at night, the loss would have been greater. As it was, very little of the contents of the school were saved besides what the staff and children happened to wear at the time. The cause of the fire can only be guesed at.

ATTENDANCE at Boarding Schools.

Name of School.	Provided for.		On Roll.	
	1902-1903.	1903-1904.	June 1903.	June 1904.
Norway House (Meth.)	50	50	53	57
Pine Creek (R.C.)	55	55	59	57
Rat Portage (R.C.)	30	30	31	30
Cecilia Jeffrey, Shoal Lake (Presb.)	30	30	17	21
Crowstand (Presb.)	40	40	42	45
Birtle (Presb.)	40	40	45	43
Round Lake (Presb.)	40	40	30	26
Cowessess (R.C.)	40	40	40	40
File Hills (Presb.)	15	15	16	16
Gordon (C.E.)	30	30	30	24
Muscowequan (R.C.)	30	30	30	28
Duck Lake (R.C.)	100	100	103	102
Emmanuel College (C.E.)	52	52	49	54
Isle à la Crosse (R.C.)	12	20	12	20
Thunderchild (R.C.)	15	20	15	20
Onion Lake (R.C.)	50	50	51	45
" (C.E.)	16	16	23	20
Blue Quill's (R.C.)	45	45	50	39
St. Albert (R.C.)	80	80	70	72
Ermineskin (R.C.)	50	50	50	52
McDougall Orphanage (Meth.)	40	40	39	48
Sarcee (C.E.)	15	15	14	17
Old Sun's (C.E.)	50	50	42	40
Crowfoot (R.C.)	25	25	17	24
Blood (C.E.)	50	50	49	47
" (R.C.)	25	25	28	33
Peigan (C.E.)	30	30	26	22
" (R.C.)	20	20	21	20
Lesser Slave Lake (C.E.)	15	15	33	30
" (R.C.)	40	40	41	39
Smoky River (R.C.)	15	15	18	11
Fort Chipewyan (R.C.)	40	40	35	36
Portage la Prairie (Presb.)	20	25	20	22
Wabiscow (R.C.)	15	15	27	25
" (C.E.)	15	15	15	15
Hay River (C.E.)	20	20	33	no return.
Ft. Vermilion (R.C.)	15	15	..	2
Ft. Resolution (R.C.) New	..	25	..	13
	1,270	1,308	1,274	1,255

ATTENDANCE at Industrial Schools.

Name of School.	Provided for		On Roll.	
	1902-1903.	1903-1904.	June 1903.	June 1904.
St. Boniface	100	100	75	80
Rupert's Land	120	120	95	89
Elkhorn	100	100	83	75
Brandon	100	115	103	105
Qu'Appelle	225	225	234	225
Regina	125	125	113	111
Battleford	120	120	83	87
Red Deer	80	80	68	92
Calgary	50	50	41	27
Dunbow	120	120	82	81
	1,140	1,155	977	962

I have, &c.,

DAVID LAIRD,
Indian Commissioner.

REPORT OF SURVEYS IN MANITOBA AND THE NORTHWEST TERRITORIES.

OTTAWA, December 14, 1903.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report for the past season's work in connection with Indian surveys in Manitoba and the Northwest Territories:

In compliance with your instructions, I left Ottawa on March 11, and, having reported to the Indian Commissioner at Winnipeg, I proceeded to the Roseau reserve and subdivided the portions designated in your instructions.

Having completed the subdivison of that portion of the Roseau reserve, I went on to Prince Albert and from there to La Corne, to mound that portion of the Cumberland reserve, subdivided under your instructions of last winter, but found there was too much water, and decided it would be advisable to wait until the autumn, when the surface water would have run off and the ground be more dry. Returning to Prince Albert, I organized a party for the season's work in the Battleford and Onion Lake agencies.

In compliance with your instructions, I have established and permanently marked the boundaries of all Indian reserves in the Battleford agency, and two reserves in the Onion Lake agency; also laid out a reserve for the Cold Lake Indians in the same agency.

The past season was most unfavourable for carrying out surveys, owing to the cold rains and most disagreeable weather; but in spite of these drawbacks my party had completed a large amount of work.

I notice more particularly this season a marked encroachment of scrub, willow and poplar on the prairie country, owing no doubt to the absence of prairie fires, through the stringent regulations regarding the same.

The following is a list of Indian reserves, the boundaries of which have been resurveyed and established :—

(1) Reserve No. 112 Moosomin.
(2) " 112A " and Thunderchild.
(3) " 115 Thunderchild.
(4) " 115A "
(5) " 113 Sweet Grass.
(6) " 113A "
(7) " 113B "
(8) " 114 Poundmaker.
(9) " 116 Little Pine.
(10) " 110 and 111 Grizzly Bear and Lean Man.
(11) " 108 Red Pheasant.
(12) " 109 Mosquito.
(13) " 119 Seekaskootch.
(14) " 120 Makaoo.

In addition to the foregoing, a reserve for the Cold Lake Indians has been surveyed.

I may mention that, owing to the increased demand for labour and the general prosperity of the country, wages and transport are very much higher than formerly.

I have, &c.,

J. LESTOCK REID,
In charge of Indian Reserve Surveys,
Manitoba and N.W.T.

BRITISH COLUMBIA,
BABINE AND UPPER SKEENA RIVER AGENCY,
HAZELTON, July 9, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit herewith my annual report and statistical statement, also list of government property in my keeping, to June 30, 1904.

Agency.—This agency is the most northerly situated, and is bounded towards the north and west by the Northwest Coast agency, towards the south by the Williams Lake agency, and on the east by the Rocky mountains.

For geographical reasons and distinction of entirely different characteristics of nations, this agency is treated under two divisions.

THE KITSUN DIVISION.

Language.—The language of the Kitsuns is the original of such spoken under different dialects by the Tsimpsians of the coast and the Indians of the Nass river.

Location.—The supervision of this part of the district begins from the Kitselas canyon of the Skeena river, and about ninety miles below Hazelton, terminating beyond its head-waters, covering a distance of about one hundred and sixty miles, exclusive of Kitwankool, situated on the trail to Ayensk, Nass river, and Kisgegas, on the Babine river, three miles beyond its confluence with the Skeena. The other six villages are on both banks of the latter river and end towards its source with that of Kuldoe. With the exception of Hazelton, all the villages are connected by trails with the Nass where they converge at Ayensk.

Reserves.—The reserves of this division contain, collectively, an aggregate of 19,570 acres of agricultural, grazing, hay and timber land.

The areas comprise in their contents mainly natural meadows with growths of balm of Gilead, poplar, willow, alder and hazel, and rolling timber-covered knolls.

Population.—The division has a total population of 1,120 men, women and children, being an increase of 9 over last year's count.

Nation.—The Indians under this heading are of the Ksun nation. Its bands will be dealt with in the order towards the source of the Skeena.

KITWANGAR BAND.

Reserves.—The reserves of this band are about equally located on both banks of the Skeena and comprise an area of 4,275 acres. With these are here included five unsurveyed allotments for fishing grounds.

Vital Statistics.—The population is 154, consisting of 56 men, 58 women and 40 children. There occurred 5 births and 4 deaths, making an increase of 1.

Health and Sanitation.—The Indians experienced the best of health, and care is being taken to preserve it by a system of keeping clean all premises and their environs. During the year more of the Indians were vaccinated.

Resources and Occupations.—The resources are fishing, hunting and trapping and keeping some stock. These Indians occupy themselves with cutting cord-wood, tilling their gardens and working for the canneries on the coast. The women and children gather a large quantity of wild berries, and dry them. The berries being spread on

willow-grates with a clear fire underneath and the sun from above, become evaporated. In this state the substance is baked into a sheet-like elastic mass and then cut up into board shape of two feet in length, and tons of it are put up for winter use.

Buildings.—Care is being taken that all buildings are located on dry and healthy ground and are spaciously arranged to combine comfort with privacy, also with windows enough to ensure the admission of plenty of sunlight and fresh air.

Stock.—This band's cattle and horses wintered without loss, and increased attention is constantly being given them.

Farm Implements.—The implements used are not such as would be used in actual farming, but suffice in clearing and tilling land for the potato and other root-crops, and in reaping and stowing hay.

Education.—The school here is under the auspices of the Anglican Church Missionary Society and is centrally located in the village. The school is endowed with the usual grant for day schools and is making good progress. Much attention is given the pupils, and the parents of the latter are alive to the advantage thus afforded them. To the energy of the missionary, the Rev. A. E. Price, credit is likewise due for the well-lighted and equipped school-house.

Religion.—Much interest is being taken in Christian teaching, and the church, which is also a model of structure, is well and regularly attended by the people.

Characteristics and Progress.—The people of this band are honest in their dealings, well meaning and law-abiding. Some of the old of their number still persist in going to feasts, but that is a racial, rather than individual characteristic. The majority of them are good at carpentry and equally so at other handiwork. Additional land is constantly being broken up, and correspondingly more care is bestowed upon growing potatoes, other root-crops and hay, and as conditions and opportunities develop, they promptly avail themselves of them.

Temperance and Morality.—The people are temperate and moral.

KITWANKOOL BAND.

Reserve.—The village of this band, for which no reserve has yet been allotted, is the only one remotely situate from the Skeena, and is located on the right bank of the Kitwangar river, twenty-five miles from Kitwangar and four miles below Lake Kitwankool and on the trail from Kitwangar and Kitsegukla to Ayensk, Nass river.

Vital Statistics.—The population of this band—exclusive of its quota of 115 living at Ayensk, Kincolith and Fishery bay, Nass—numbers 67, and is composed of 21 men, 21 women, and 25 children. During the year there were 3 births and 4 deaths, making a decrease of 1.

Health and Sanitation—There is no illness to record. Sanitary measures are fairly well observed, and more of this band have been vaccinated.

Resources and Occupations.—To this band the lake of its name yields an unlimited supply of salmon. Hunting and trapping bring good returns, and the gathering of wild berries by the women and children. Though somewhat isolated, these Indians, like their kindred, display a great facility in seizing opportunities for making money. Generally, during the season, they work in the salmon canneries of the coast and earn fair wages, when conditions permit.

Buildings.—Buildings recently erected are, as elsewhere, of modern make and well located.

Stock.—Cattle and horses wintered well and without loss, and better provision is being made for their keep.

Farm Implements.—Only the tools for clearing, gardening and weeding are in use.

Education.—There is no school in this village. Some of the children periodically attend school at Kitwangar and also at Kincolith and Ayensk, Nass.

Religion.—No missionary is stationed here and no church adorns the village, but the people more or less receive religious instruction in the localities last mentioned.

Characteristics and Progress.—This band, though still somewhat divided by the perverseness of the old people in regard to the ideas prevailing among the younger and progressive of its number, is steadily improving its condition ; as these people are naturally industrious, the diversity of opinion will gradually cease.

Temperance and Morality.—There are few complaints in regard to either intemperance or immorality.

KITSEGUKLA BAND.

Reserves.—The reserves of this band are located on both banks of the Skeena and contain an area of 3,732 acres. The new and old villages are both situated on the left bank of the river ; the latter about nine miles below the first. Since reserve No. 2, containing the new village, inclusive of the part on the opposite bank, became subdivided, the old village can be considered to be almost abandoned.

Vital Statistics.—The population of this band's two villages is 91, made up of 30 men, 30 women and 31 children. There were 4 births and 2 deaths, causing an increase of 2.

Health and Sanitation.—During the year the Indians were in perfect health. In the new village, the premises and their surroundings are kept very clean, and in the old village fairly so ; more of its people were vaccinated.

Resources and Occupations.—This band's main resources are fishing, hunting and trapping and its members are occupied in working in the canneries of the coast, also in cutting cord-wood, improving their homes in severalty and in raising produce of the soil other than grain, for part of their subsistence.

Buildings.—All buildings, exclusive of those of the old village, are constructed in conformity with modern principles, modified by local requirements.

Farm Implements.—With the exception of a good plough, only ordinary implements required for breaking up land, clearing and tilling the soil, and for haying, are yet in use.

Education.—Here, fair progress is being made at the school; but contrary to what I naturally expected, the school still remains at the old village, in which it is centrally located.

Religion.—The members of this band belong to the Methodist Church. The church-building also still remains at the old place, but will, no doubt, likewise be removed to form part of the new settlement, and thereby contribute still more effectively towards its well-being.

Characteristics and Progress.—The Indians of this band are law-abiding, diligent and continuous workers, and in contrast between newly-acquired tastes and old inherent habits, have vastly discarded the latter for an adjustment of conditions much desired.

On their No. 2 reserve more work has been accomplished on the locations in severalty during last fall than previously for many months; and more complete would have been the result, but for the failure in earning of wages during the past season at the canneries of the coast. Since making it an indispensable condition that the holder of a location must be an actual inhabitant, to the exclusion of any other home, the results have been much more expeditious.

Temperance and Morality.—Under both terms their conduct is excellent.

GETANMAX BAND, HAZELTON.

Reserve.—The reserve lands of this band are located, with the exception of a timber reserve, on Two-mile creek, on both banks of the Skeena, and inclusive of Rocher

Déboulé, also assigned to this band, and on both banks of the Bulkley river, comprise a total area of 3,791 acres.

Vital Statistics.—The population, largely composed originally of other villages, is 241, consisting of 93 men, 94 women, and 54 children. There were 11 births and 7 deaths, making an increase of 4.

Health and Sanitation.—The health of the Indians was very good. The usual precautionary measures were observed, and in addition more of the people were vaccinated. No trace of any contagion made itself apparent. Cases of illness are being treated by Dr. H. C. Wrinch, and by his services many desperate cases among the Indians were most successfully treated by surgical operations and proper treatment.

Attention is given to cleanliness of person, premises and their surroundings. In the latter respect the elective councils of the three preceding bands and the one of this village, deserve credit for assisting.

Resources and Occupations.—Fishing, hunting and trapping are more and more becoming less and less a means of resource. Hazelton being the terminus of communication of the larger part of this district, and the entrepôt of supplies for the interior, the Indians of this band, with those nearby, readily find employment of all sorts at high wages.

Buildings.—All buildings outside of the old village, are well placed, of good pattern, well lighted and commodious.

Stock.—The cattle and horses wintered well; they were fairly well provided for.

Farm Implements.—With the exception of a harrow, the implements are such as are generally used for clearing, gardening and haying.

Education.—The school here is under the auspices of the Anglican Church Missionary Society. It is well attended during the season, and the parents of the pupils are taking more interest in having them attend. The school-house occupies the north end of the Hazelton townsite, near the old Indian village.

Religion.—Interest is taken in religious matters and a fine church-building stands on the townsite, in which the Church of England service is conducted.

Characteristics and Progress.—The Indians of this band are law-abiding, industrious and provident. What they earn in wages is generally put to good use. Subdivisions of their reserves are steadily being taken up and improved, and inquiries are constantly made for more.

Temperance and Morality.—Though, here, the temptations to transgress in both respects are many, the complaints are few.

GLEN VOWELL BAND.

Reserve.—The village of this band is located about four miles above here, on the special reserve of Sikedach, on the right bank of the Skeena. This reserve contains 900 acres.

Vital Statistics.—The population is 73, consisting of 20 men, 20 women and 33 children. During the year there was 1 birth and 1 death, causing no change in the population.

Health and Sanitation.—The health of the Indians was excellent; the necessary precautions are well observed, and more of the people were vaccinated.

Resources and Occupations.—In addition to doing some fishing and hunting, the people keep some stock. In other respects they usually earn good wages at the various employments afforded. Much of their time is also given to the improvement of their holdings.

Buildings.—The buildings of this settlement are largely of uniform pattern, commodious and well lighted.

Stock.—The cattle and horses are properly looked after, and fair provision is made for their keep.

Farm Implements.—Only the necessary implements for breaking up land, gardening and haying are in use here.

Education.—There is good progress made with the school; its premises are centrally located to the village and the pupils are being well taken care of.

Religion.—There is a meeting-house in which Salvation Army service is conducted, and its location is likwise central.

Characteristics and Progress.—The people are law-abiding, industrious and persevering. Much of their land has been converted into pasture and gardens, and more is being cleared and well fenced. All that is accomplished, in so short a time, denotes a record not easily surpassed.

Temperance and Morality.—They are a temperate and moral community.

KISPIAX BAND.

Reserve.—The village of this band is situated about eight miles above here on the right bank of the Skeena and on the left bank of the mouth of the Kispiax river. The main reserve is allotted on that side of the former river, with a special reserve north from the village, and, inclusive of Sikedach, connected with the preceding band, contains an area of 4,916 acres.

Vital Statistics.—This band has a population of 216, composed of 74 men, 77 women and 65 children. There were 11 births and 4 deaths, making an increase of 7.

Health and Sanitation.—The health of these Indians has been very good. The usual precautions are taken to preserve it, and some of the people were vaccinated.

Resources and Occupations.—The resources are hunting and trapping in winter and catching salmon during the summer. Working in the canneries of the coast, and for wages at general employment, here, occupy the better part of the season.

Buildings.—All buildings erected here of recent years are of very superior quality, being in striking contrast to the old ones.

Stock.—The cattle and horses wintered well and better care is being bestowed upon them from year to year.

Farm Implements.—With the exception of two harrows, only the ordinary tools for clearing land, gardening and haying are in use.

Education.—School is being taught in a house fairly centrally located and improvised for that purpose. During the season it is well attended. Good progress is made by the pupils. The parents of the latter take an interest in the matter by enforcing their attendance, when conditions at all permit.

Religion.—The people are of the Methodist denomination. A nice and commodious church-building serves for religious devotions and is generally well attended.

Characteristics and Progress.—These Indians were known to be of rather a fractious and obdurate disposition, but are improving. A relapse, however, into the old conditions must occasionally be met again, and again, and again; and in this it is hard to keep the odds uniform with the rest.

Temperance and Morality.—Regarding the former, violations periodically occur, but are promptly punished; morally, their conduct is fair.

KISGEGAS BAND.

Reserve.—The home of this band is about sixty-eight miles to the north of here, on the right bank of the Babine river, and three miles above its confluence with the Skeena. The reserve embraces both sides of the Babine river with an area of 2,415 acres.

Vital Statistics.—This band numbers 241, consisting of 89 men, 91 women and 61 children. There were 3 births and 5 deaths, resulting in a decrease of 2.

Health and Sanitation.—The Indians' health has been excellent. Sanitary measures are observed and an additional number of the people and their children have been vaccinated.

Resources and Occupations.—The resources of this band are : catching salmon, mainly in the canyon below the village, and hunting and trapping. These Indians of late years are more occupied in tilling their potato-patches. The women and children gather wild berries and dry them for winter use.

Buildings.—Here also, only buildings of modern pattern are supplanting the old.

Stock.—The stock, consisting only of horses, wintered well.

Farm Implements.—Only the ordinary tools for clearing land, gardening and haying are used.

Education.—The mission-building, conveniently located, is used for school purposes. The children are making fair progress and their parents encourage attendance.

Religion.—These Indians are Anglicans.

Characteristics and Progress.—These people are very intelligent and industrious, but their energies are still mainly applied to the fishing, hunting and trapping grounds. As a whole, much improvement of their condition is steadily going on.

Temperance and Morality.—These Indians are temperate and moral.

KULDOE BAND.

Reserve.—The village of this band is situated on the right bank of the Skeena river. The reserve contains 446 acres, almost equally divided in area on both banks of the Skeena.

Vital Statistics.—This band has a population of 37, made up of 11 men, 12 women and 14 children. There occurred 1 birth and 3 deaths from natural causes, resulting in a decrease of 2.

Health and Sanitation.—The health of this band has been very good. The usual sanitary measures are heeded and more of the people were vaccinated.

Resources and Occupations.—The river furnishes a goodly supply of salmon. For so few people, the large hunting-grounds give large returns. Of late, more of their time is occupied in attending to their gardens.

Buildings.—The buildings here are still made of split cedar and are of the primitive kind.

Stock.—Of stock these Indians have none.

Farm Implements.—Tools for breaking up land, gardening and weeding are employed.

Education.—There is no school at this village, but the children periodically attend that of Kisgegas.

Religion.—There is no church, but ten people take an interest in Christian teaching.

Characteristics and Progress.—The people are law-abiding and intelligent ; though remotely situated, they are striving for the better by extending and improving their potato-grounds, and in breaking up more land.

Temperance and Morality.—This band observes temperate and moral habits.

HAGWILGET DIVISION.

Language.—Hagwilget or the Déné, a language of a small but plastic vocabulary, is spoken by the tribes of Indians of that nation, ranging from within three miles to the southeast of here to beyond the Rocky mountains in that direction.

Location.—This division begins within three miles to the southeast of Hazelton, and extends in that bearing for a distance computed at 325 miles, and ends at Fort George, on the Fraser river.

Reserves.—The reserves of this division embrace an area of 29,510 acres of agricultural, grazing, hay and timber land, with seventeen villages under the Babine and Carrier groups.

The natural features of the reserves consist in the main of flat-lying meadows that are backed by recurring benches more or less timbered.

Vital Statistics.—The total population is 1,831 men, women and children, showing an increase of 13 over last year's census, which will be accounted for later on, in detail.

Nation.—The following bands are of the Déné nation :—

ROCHER DÉBOULÉ BAND.

In dealing with the following, I deem it admissible to reserve for the summing up, remarks in regard to localities identical in feature and conditions from beginning to end.

Reserve.—The village of this band is located three miles to the southeast of Hazelton, on the lofty left bank of the Bulkley river. The reserve comprises both sides of that river, and contains an area of 443 acres, which is assigned to the Getanmax (Hazelton) band.

Vital Statistics.—This band numbers 161, consisting of 60 men, 59 women and 42 children. There were 2 births and 4 deaths, causing a decrease of 2.

MORICETOWN BAND.

Reserve.—The village of this band is situated on the left bank of the Bulkley river, and at its main canyon. In area, the reserve is almost evenly divided on both sides of the river, and contains 1,853 acres.

Vital Statistics.—The population of this band is 157, made up of 58 men, 58 women and 41 children. There were 5 births and 3 deaths, making an increase of 2.

FORT BABINE BAND.

Reserve.—The village is situated on the right shore of Babine lake, near its discharge, the Babine river, where there is a bridge of about 200 feet in length. The reserve has an area of 894 acres, partly distributed on each bank.

Vital Statistics.—This band numbers 151, consisting of 55 men, 57 women and 39 children. There were 2 births and 3 deaths, resulting in a decrease of 1.

OLD FORT BABINE BAND.

Reserve.—The village is on the right and the reserves are on both shores of the lake, and comprise an area of 359 acres.

Vital Statistics.—This band has a population of 137, composed of 49 men, 48 women and 40 children. There were 2 births and 4 deaths, making a decrease of 2.

YUCUTCÉ BAND.

Reserve.—The village and reserve are situated at the head of Stuart's lake, on the intervening nine miles of land between Babine and Stuart's lakes, or portage. The reserve area amounts to 817 acres.

Vital Statistics.—This band numbers 17, made up of 6 men, 5 women and 6 children. There were no births and 1 death, resulting in a decrease of 1.

TACHÉ BAND.

Reserve.—The village and reserve are situated on the left bank of Stuart's lake, with the former at the mouth and left bank of the Taché river. The reserve area amounts to 1,779 acres.

Vital Statistics.—The population is 61, consisting of 19 men, 20 women and 22 children. There were 4 births and 2 deaths, making an increase of 2.

PINTCE BAND.

Reserve.—The village and reserve are on the left bank of Stuart's lake, and the former at the mouth and right bank of the Pintce river. The reserve contains 728 acres.

Vital Statistics.—This band numbers 41, made up of 14 men, 15 women, and 12 children. There were 3 births and 1 death, causing an increase of 2.

GRAND RAPIDS BAND.

Reserve.—The village and reserve of this band are on the right bank of Taché river, at the point commonly called Trembleur river. The reserve contains 584 acres.

Vital Statistics.—The population is 24, composed of 8 men, 6 women and 10 children. There were no births, but 2 deaths, resulting in a decrease of 2.

TSISTLAINLI WITH TSISLY BAND.

Reserve.—The two villages and reserves of these, the people of one and the same band, are at the head of Trembleur lake and left bank and mouth of Tatla river. The reserves contain an area of 1,291 acres.

Vital Statistics.—The population is 17, consisting of 6 men, 5 women and 6 children. There were 2 births and no deaths, making an increase of 2.

STUART'S LAKE BAND.

Reserve.—The village and reserve of this band are on the left shore of Stuart's lake, and at its discharge, Stuart's river. The area of the reserve is 2,875 acres.

Vital Statistics.—The population is 195, consisting of 72 men, 71 women and 52 children. There were 16 births and 5 deaths, making an increase of 11.

STELLA BAND.

Reserve.—The village and reserve of this band are on the right bank of the Stella river and near its discharge into Fraser lake. The reserve comprises an area of 2,077 acres.

Vital Statistics.—This band numbers 55, composed of 16 men, 16 women and 23 children. There were 11 births and 2 deaths, resulting in an increase of 9.

FRASER LAKE BAND.

Reserve.—The village and reserve of this band are on the left shore of Fraser lake and at its discharge, the Natleh river. The reserve area consists of 1,949 acres.

Vital Statistics.—The population is 63, made up of 20 men, 19 women and 24 children. There were 5 births and 1 death, causing an increase of 4.

STONY CREEK BAND.

Reserve.—The village is located on the right bank of Stony creek, and the reserve on both of its banks extends down to its discharge into Noolka lake. The reserve comprises an area of 7,488 acres.

Vital Statistics.—This band numbers 105, composed of 37 men, 39 women and 29 children. There were 6 births and 4 deaths, resulting in an increase of 2.

FORT GEORGE BAND.

Reserve.—The village is on reserve No. 1, on the right bank of the Fraser river ; No. 2 is located on the same side of that river. No. 3 is located on the left bank. No. 4 is located on the left bank on the latter's right bank, and also on the right bank and mouth of Mud river, one of its eastern affluents. In area they amount to 3,095 acres.

Vital Statistics.—The population of this band is 121, consisting of 42 men, 44 women and 35 children. There were 5 births and 3 deaths, making an increase of 2.

TSISTLATHO BAND.

Reserve.—Reserve No. 1 is located on the right bank of the Fraser river ; No. 2, on the left bank of the Blackwater river, and No. 3, on the eastern shore of Nattesley or Bobtail lake ; altogether amounting in area to 537 acres.

Vital Statistics.—This band numbers 67, made up of 25 men, 24 women and 18 children. There were 2 births and 4 deaths, causing a decrease of 2.

MCLEOD'S LAKE BAND.

Reserve.—The village is located on the western shore of McLeod's lake, and the reserve on both banks of Long river. The reserve contains an area of 286 acres.

Vital Statistics.—This band has a population of 96, composed of 31 men, 31 women and 34 children. There were 3 births and 2 deaths, resulting in an increase of 1.

FORT GRAHAME AND LAKE CONNELLY BANDS OF SIKANEES.

Location.—Members of the former band of Sikanees occasionally come into Fort Grahame to trade, and the latter to Connelly lake outpost. Being nomadic and depending entirely on fresh and smoked cariboo and moose-meat, conditions do not permit their travelling and camping in numbers beyond those of single families. Thus they roam over a range of about four hundred miles of mountains, lakes and swamps to the east of their respective trading posts.

Vital Statistics.—From the best information at my disposal, the Fort Grahame band numbers about 93, consisting of 30 men, 31 women and 32 children. There were reported 1 birth and 4 deaths, which would cause a decrease of 3.

The Connelly Lake band numbers about 119, said to be composed of 44 men, 44 women and 31 children. There were supposed to have been 3 births and 7 deaths, which would result in a decrease of 4.

CONNELLY LAKE BANDS OF NA-ANEES.

Two semi-nomadic bands of Na-anees likewise roam under above conditions over a large expanse of mountains and lakes to the north of Lake Connelly.

Vital Statistics.—The population of these two bands of Indians is about 151, reported to consist of 55 men, 53 women and 43 children; with 2 births and 5 deaths, making a decrease of 3 in these two bands.

GENERAL REMARKS CONCERNING HAGWILGET DIVISION.

Health and Sanitation.—During the year the Indians experienced the best of health, and with the exception of some cases of whooping-cough among the children

of Fort Babine, late this spring, no semblance of anything contagious appeared; and that affliction must have sprung from some local cause, as it cannot be traced to any source whatever. The Indians are advised of the necessity of cleanliness, and many have been vaccinated.

Resources and Occupations.—The main resources are hunting, trapping and fishing, and keeping some stock. The bands of Rocher Déboulé, Moricetown and Fort Babine do packing with their horses. At Stuart's lake and Fort George, the Indians earn some money by canoeing and packing with their horses; the latter as an occupation applies likewise to those of Stony creek. As a whole, of late they occupy more of their time in attending to their gardens.

Buildings.—They are taking an interest in building better houses and are more concerned in choosing the ground.

Timber and Bush Fires.—Of late years, the Indians have become more cauticus in prevention of the same. Fire notices are posted in the most conspicuous localities through the district. The few fires that became at all evident, were of short duration by the timely intervention of rains.

Stock.—The stock of the Indians wintered fairly well with the exception in the Stony Creek range, where losses occurred from protracted snows.

Farm Implements.—The implements consist of such as are used in breaking up land, gardening and haying.

Education.—There are no schools on any of the reserves of this division, but the people have learnt to use the syllabic writing in their own language.

Religion.—The Indians of this division are adherents of the Roman Catholic Church. The home mission of this district is at Stuart's Lake, and there are churches at Rocher Déboulé, Moricetown, Fort Babine, Old Fort Babine, Taché, Pintce, Fraser Lake, Stella, Stony Creek, Fort George, McLeod's Lake and Blackwater.

Characteristics and Progress.—The Indians are of good disposition and tractable. The most ambitious are those of Rocher Déboulé and Moricetown. All are prepared to meet the new conditions that a movement of settlers into the valleys and prairies around them will create. Though this innovation may not be up to their conception of things, at present, it surely will prove in expedient the missing link of a change substantially for the better.

Temperance and Morality.—During the year, no information on infraction of either temperance or morality came from within this division.

I have, &c.,

R. E. LORING,
Indian Agent.

BRITISH COLUMBIA,
COWICHAN AGENCY,
QUAMICHAN, August 5, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit herewith my annual report and statistical statement for the year ended June 30, 1904.

Agency.—This agency is situated on the east coast of Vancouver island and extends from Cape Mudge on the north to Sooke on the south, including the reserves on the different islands in the gulf of Georgia.

The total area of the reserves in this agency is 19,893 acres, forming a portion of the territory occupied by the Cowichan nation, whose language and influence formerly extended to the bays and sounds on the American side of the gulf, and up the Fraser river as far as Yale; which reserves are occupied by the following bands :—

SOOKE BAND.

Reserves.—(Nos. 1, 2, 3 and 4.) The reserves of this band are situated on the straits of Juan de Fuca, about twenty-five miles southwest of the city of Victoria ; and contain an area of 166 acres.

Vital Statistics.—The population numbers 24, consisting of 6 men, 7 women and 11 children. During the year there has been 1 death and no births, making a decrease of 1.

Health and Sanitation.—These Indians all enjoy good health, and their premises are kept clean.

Occupations.—The Indians are chiefly engaged in farming and fishing. During the summer they go to the Fraser river for the salmon-fishing and in the fall to the hop-fields in the State of Washington.

Buildings, Stock and Farm Implements.—They have all good implements and stock ; their buildings are in good repair. They take good care of their stock.

Religion.—They are all Roman Catholics.

Education.—There is no school on the reserve.

Characteristics and Progress.—These Indians are industrious and well behaved. Year by year they pay more attention to the cultivation of their farms.

Temperance and Morality.—They are temperate and moral.

CHEERNO BAND (BEECHER BAY).

Reserves.—(Nos. 1 to 11 inclusive.) These reserves are situated on the straits of Juan de Fuca, about fifteen miles southwest of Victoria, and contain 779 acres. As most of the land in these reserves is hilly and rocky, very little of it is fit for farming.

Vital Statistics.—The population of this band numbers 45; consisting of 9 men, 17 women and 19 children. During the year there has been 1 birth and 2 deaths, making a decrease of 1 for the year.

Health and Sanitation.—The health of the band has been good. They have been careful to keep their buildings clean.

Occupations.—These Indians do a little farming on such land as they can cultivate; they also fish for the Victoria market. Some of them go to the hop-fields in the State of Washington.

Buildings, Stock and Farm Implements.—Their houses are fairly good. They have some cattle of medium quality, also some horses. They possess a few farm implements of fair quality.

Education.—There is no school on these reserves.

Religion.—Most of these Indians are Roman Catholics. A few are pagans and Shakers.

Characteristics and Progress.—These Indians are fairly industrious and show a desire to better their condition.

Temperance and Morality.—Although a small number of these Indians give way to drink, yet they are not what may be termed immoral.

SONGHEES BAND.

This band comprises the following sub-families, the Esquimalt and Discovery Island Indians as well as the Songhees Indians.

Reserves.—(Nos. 1, 2, 3 and 4.) These reserves are situated on the harbours of Victoria and Esquimalt; and on the islands in the straits of Juan de Fuca; the total area of these reserves is 306 acres. Very little of the land is fit for cultivation.

Vital Statistics.—The total population of this band is 154; consisting of 36 men, 45 women and 73 children; during the year there have been 2 births and 4 deaths; there have also been 7 migrations into the band, making an increase in population of 5 for the year.

Health and Sanitation.—These Indians enjoy pretty good health. Owing to their proximity to Victoria they keep their houses neat and in good condition.

Occupations.—Fishing and working for white men in the city of Victoria form their chief means of livelihood.

Buildings, Stock and Farm Implements.—Their dwellings and outbuildings are in a fair condition. They keep very little stock. As to farm implements, they have very few.

Education.—There is a school on these reserves, which is fairly well attended.

Religion.—These Indians are all either Roman Catholics or Methodists.

Characteristics and Progress.—They are fairly industrious and law-abiding and show a desire to improve their condition.

Temperance and Morality.—They are fairly temperate and moral, but, living so near to the city of Victoria, unfortunately a few are addicted to intemperate habits.

BANDS IN THE SAANICH DISTRICT.

Reserves.—The following bands occupy reserves numbered 1 to 13 inclusive, in Saanich district, viz.: Malakut, Tsekum, Pauquachin, Tsartlip and Tsawout; the total area of the said reserves being 3,318 acres.

Vital Statistics.—The total population is 260, consisting of 64 men, 79 women and 117 children. During the year there have been 5 births and 4 deaths; 1 joined the band and 5 left, making a decrease of 3.

Occupations.—The chief occupations of the Indians are general farming, fishing and hop-picking; also working among the adjoining white settlers.

Health and Sanitation.—The health of these Indians has been good during the past year and their premises are kept clean.

Buildings, Stock and Farm Implements.—Some of these Indians have good comfortable dwellings, fairly well furnished, and their outbuildings are fairly good. They have some improved breeds of stock, and take care of them. Their implements, of which they have a good supply, are in good condition.

Education.—There are two schools provided for these Indians, one situated on the Tsawout reserve, the other at Tsartlip. They take considerable interest in educational matters.

Religion.—The Indians of this band are all Roman Catholics and regularly attend church.

Characteristics and Progress.—The majority of these Indians are industrious and law-abiding; unfortunately a few of them get into trouble through violation of the law.

Temperance and Morality.—When the Indians get into the city of Victoria they are exposed to great temptation and fall easy victims to the schemes of unscrupulous sellers of whisky, and the result is several of them get drunk. The band, taken as a whole, is well-behaved.

BANDS IN COWICHAN DISTRICT.

Reserves.—The following bands occupy reserves numbered 1 to 8 inclusive, in Cowichan valley, which is situated on the east coast of Vancouver island, about forty miles north of the city of Victoria, viz.:—Kilpaulus, Comeakin, Clemclemaluts, Khenipsin, Koksilah, Quamichan and Somenos. The total area of these reserves is 6,088 acres.

Vital Statistics.— The combined population of the seven bands is 679, consisting of 202 men, 208 women and 269 children. During the past year there have been 8 births and 11 deaths, making a decrease of 3.

Health and Sanitation.—The health of these Indians has been fair; there have been no epidemics nor contagious diseases among them during the past year. Their chief maladies are scrofula, consumption and rheumatism. As there is an abundance of fresh water running through their lands, the sanitary conditions are good.

Occupations.—The chief occupation of these Indians is farming, although during the summer and autumn they earn a lot of money from the fisheries on the Fraser river, and from the hop-fields in the State of Washington. In addition to this, they do a great deal of work for the white farmers in the neighbourhood and are enabled thereby to earn considerable cash, especially in harvest-time.

Buildings, Stock and Farm Implements.—The character and number of their buildings continue to improve. Their dwelling-houses become more comfortable each year. Their stock is very good; the horses are of larger and better breed than formerly, the cattle are improving fast in quality and quantity. Several of the Indians own mowers, reapers, binders and threshing-machines both steam and horse-power, with which they earn a great deal of money harvesting and threshing the crops of the white farmers of the surrounding district. Their farm machinery is of the most improved pattern.

Education.—There are two schools provided for these Indians : one situated in the Somenos village, the other between the Clemclemaluts and Quamichan villages. Both schools are doing well and the pupils show good progress. The older children attend the Kuper Island industrial school.

Religion.—The majority of these Indians are Roman Catholics.

Characteristics and Progress.—The Indians in this district are industrious and law-abiding, seldom violating the law and as a whole are very progressive.

Temperance and Morality.—Taking them all round, these Indians are of temperate habits, a few being fond of liquor. They are very moral and compare favourably with any Indians on the coast.

HELLELT BAND.

Reserves.—(Nos. 1 and 2 of the Chemainus band.) One reserve is situated on the south bank of the Chemainus river, about a mile and a half from its mouth; the other on an island at the mouth of the same river. The two reserves contain a combined area of 427 acres.

Vital Statistics.—The population is 28; consisting of 8 men, 9 women and 11 children. There has been one death during the year but no births, making a decrease of one.

Health and Sanitation.—These Indians have been very healthy; no sickness of a contagious nature has prevailed among them; they all live during the summer months in their private houses.

Occupations.—The Indians of this band engage chiefly in farming and fishing and they earn a little money occasionally by clearing land for the white settlers.

Buildings, Stock and Farm Implements.—The buildings are neat and of good construction; the Indians do not own much stock, but what few they have are well taken care of; so also are their farm implements.

Education.—There is no school on these reserves; as soon as the children are old enough, they attend the Kuper Island industrial school.

Religion.—Many of these Indians are Roman Catholics; those that are not Roman Catholics are semi-pagans.

Characteristics and Progress.—These Indians are industrious; seldom do they get into trouble.

Temperance and Morality.—They are temperate and moral. A few occasionally indulge in whisky.

THE SICCAMEEN AND KULLEETS BAND.

Reserve.—(Nos. 10, 11, 12 and 13, of the Chemainus band.) The main reserve is situated between Oyster harbour and Chemainus bay. One reserve is on the western shore of Oyster harbour, a fishing station on the left bank of the Chemainus river near its mouth, the total area of which is 3,084 acres. There are no lines dividing the lands of the two bands.

Vital Statistics.—The population is 105, made up of 29 men, 32 women and 44 children. One birth and 1 death occurred during the past year.

Health and Sanitation.—Like the other reserves, there is a good supply of clear spring water on the beach. There has been no sickness among the Indians of this band during the past year.

Occupations.—These Indians do very little farming, fishing and boat-building being their chief occupations. A number are employed in the town of Ladysmith.

Buildings, Stock and Farm Implements.—These Indians keep very little stock, but what few they have are well taken care of. Their houses are in pretty fair condition, especially the larger ranch houses.

Education.—There is no school on these reserves. The children of school age attend the Kuper Island industrial school.

Religion.—These Indians are all Roman Catholics.

Characteristics and Progress.—These Indians are industrious and law-abiding. Some of them are above the average in intelligence.

Temperance and Morality.—These Indians are temperate and seldom get into trouble.

LYACKSUN BAND.

Reserve.—(Nos. 3, 4 and 5 of the Chemainus band.) These reserves are situated on Valdez island, and consist of three reserves, which have a combined area of 1,840 acres.

Vital Statistics.—The population is 85, made up of 18 men, 19 women and 48 children. During the past year there have been 2 deaths but no births, making a decrease for the year of 2.

Health and Sanitation.—Owing to the location of these reserves, these Indians have enjoyed very good health.

Occupations.—These reserves are nearly all covered with rock and heavy timber. The Indians do very little farming, their chief occupations being fishing and boat-building.

Buildings, Stock and Farm Implements.—The buildings are all well kept and are of superior construction. The Indians do not now live in the old rancherie houses as formerly. They have added to the number of their stock by purchasing several well-bred animals. Although they have not many farm implements, yet what they have are good.

Education.—There being no school on this reserve, the children of school age attend the Kuper Island industrial school.

Religion.—All these Indians are either Roman Catholics or pagans.

Characteristics and Progress.—These Indians are law-abiding and very industrious.

Temperance and Morality.—Situated as they are at some distance from a town and all its evil associations and snares, they are temperate and moral.

PENELAKUT BAND.

Reserve.—(Nos. 6, 7, 8 and 9.) This reserve includes the Llmalche and Tsussie bands. These reserves are situated on Kuper island and Tent island and on the north-west extremity of Galiano island. There is also a small reserve belonging to this band situated at the mouth of the Chemainus river ; the total area of these reserves is 2,332 acres.

Vital Statistics.—The total population numbers 217, being made up of 64 men, 63 women and 90 children. During the year there have been 5 deaths and 1 left the band, but no births have taken place, making a decrease of 6.

Health and Sanitation.—These Indians have enjoyed pretty good health during the past year. .The sanitary conditions are excellent.

Occupations.—Fishing and boat-building are the chief occupations of these Indians. Not very much farming is done by them.

Buildings, Stock and Farm Implements.—The buildings are in pretty fair condition. They keep little, if any, stock. They have very few farm implements.

Education.—The Kuper Island industrial school is situated on one of the reserves belonging to this band.

Religion.—All the Indians on this reserve are Roman Catholics.

Characteristics and Progress.—The condition of these Indians has greatly improved, which is due in no small measure to the missionaries, Protestant and Roman Catholic, on the island.

Temperance and Morality.—These Indians are fairly temperate and moral.

NANAIMO BAND.

Reserve.—(Nos. 1 to 6 inclusive of the Nanaimo band.) This reserve consists of a reserve on the Nanaimo harbour and one on the Nanaimo river with a small fishing station on the southern shore of Gabriola island ; the total area of these reserves is 637 acres.

Vital Statistics.—The population is 165, consisting of 28 men, 38 women and 99 children. During the past year there have been 4 births and 3 deaths, making an increase of 1.

Health and Sanitation.—The health of these Indians has been very good during the past year. There have been no epidemics amongst them.

Occupations.—These Indians farm, work in the coal mines and also earn a lot of money trimming coal in the ships in Nanaimo harbour.

Buildings, Stock and Farm Implements.—The buildings have greatly improved in quality. Their stock is increasing in number and are well taken care of.

They have some good farm machinery and take care of it.

Education.—There is a school provided for the children of this band and the Indians take great interest in it.

Religion.—These Indians are all Methodists.

Characteristics and Progress.—These Indians are industrious and law-abiding and seem very anxious to improve their condition.

Temperance and Morality.—Considering their proximity to the city of Nanaimo, they are temperate and moral.

SNONOWAS BAND (NANOOSE).

Reserve.—This reserve is situated on the southern shore of the Nanoose harbour and has a total area of 209 acres.

Vital Statistics.—The population is 13, consisting of 4 men, 7 women and 2 children. There has been no change in the population this past year ; no births nor deaths have occurred.

Occupations.—The principal employments of these Indians are fishing and the manufacture of dog-fish oil.

Health and Sanitation.—These Indians are fairly healthy. The sanitary conditions are good.

Education.—There is no school on the reserve.

Religion.—These Indians are either Methodists or pagans.

Characteristics and Progress.—These Indians are industrious and are very progressive.

Temperance and Morality.—They are not very temperate, being rather addicted to the use of intoxicating liquors.

QUALICUM BAND.

Reserve.—This reserve is situated at the mouth of the Qualicum river. It has an area of 197 acres.

Vital Statistics.—The population of this band is 13, consisting of 4 men, 4 women and 5 children. During the year there have been no births nor deaths.

Health and Sanitation.—These Indians enjoy pretty good health. The sanitary conditions are good.

Occupations.—Not much farming is done by these Indians ; they fish a little and act as guides for fishing and hunting parties.

Buildings, Stock and Farm Implements.—The buildings are fair. They have pretty fair stock. They have not many farm implements, but what they have are well cared for.

Education.—There is no school on this reserve.

Religion.—All the Indians on this reserve are Methodists.

Characteristics and Progress.—The condition of the Indians of this band has improved very much.

Temperance and Morality.—The Indians on this reserve are temperate and moral.

COMOX BAND.

Reserve.—(Nos. 1, 2 and 3.) This reserve is situated on the northern shore of Comox harbour and on the left bank of the Pentledge river and at its confluence with the Tsolum river. In connection with the reserve is a graveyard on Goose spit, Comox harbour. The area of the reserve is 378 acres.

Vital Statistics.—The population is 58, consisting of 20 men, 18 women and 20 children. During the year there has been 1 birth and 2 deaths, making a decrease of 1.

Health and Sanitation.—The health of the band has been good. There have been no epidemics during the year nor any diseases of a contagious character. The sanitary conditions are fair.

Occupations.—The chief occupations are farming, fishing and hunting.

Religion.—The majority of the band are Presbyterians.

Education.—There is no school on this reserve.

Characteristics and Progress.—These Indians are industrious and law-abiding and have made a great deal of progress this year.

Buildings, Stock and Farm Implements.—The buildings, though few in number, are in fair condition. The quality of the Indians' stock is fair. They do not possess many farm implements.

Temperance and Morality.—These Indians are temperate; very few of them drink to excess. Their morality is on a par with that of other Indians.

Cecilia Jeffrey School, near Rat Portage, Ont.

GALIANO ISLAND BAND.

Reserve.—(No. 9 of the Penelakut band.) This reserve is located on the northwest extremity of Galiano island, and is included in the area of the reserves of the Penelakut band.

Vital Statistics.—The population consists of 8 men, 8 women and 16 children; 32 in all. During the year there has been 1 birth and no deaths, making an increase of 1 in the population.

Health and Sanitation.—The health of the Indians in this band has been good. Sanitary conditions are fair.

Occupations.—The chief occupations of these Indians are boat-building and fishing. There is no farming done on this reserve; a few gardens are cultivated.

Buildings, Stock and Farm Implements.—There are a few buildings on this reserve, but no stock.

Education.—The children attend the Kuper Island industrial school.

Religion.—All these Indians are Roman Catholics.

Characteristics and Progress.—They are industrious and law-abiding.

Temperance and Morality.—They are also temperate and moral.

MAYNE ISLAND BAND.

Reserve.—(No. 6 of the Saanich band.) This reserve is situated on the northwest extremity of Mayne island. The area of the reserve is included in that of the reserves of the Saanich band.

Vital Statistics.—The total population is 28, made up of 6 men, 6 women and 16 children. During the year there have been no births nor deaths.

Health and Sanitation.—The health of these Indians has been good during the year. The sanitary conditions are fair.

Occupations.—Fishing for the Victoria and Vancouver markets is their only occupation.

Buildings, Stock and Farm Implements.—As this is only a fishing station, their buildings are mere shanties, constructed of cedar slabs. For the same reason there is no stock nor farm implements on the reserve.

Education.—There is no school on the reserve.

Religion.—All the Indians of this band are Roman Catholics.

Characteristics and Progress.—These Indians are industrious and law-abiding and make a good living by fishing.

COWICHAN LAKE BAND.

This reserve is situated on the northern shore of Cowichan lake, near its outlet; it has a total area of 130 acres. There is at present only 1 man and 1 woman occupying this reserve, and that only during the summer months. They spend the winter among their relatives on the west coast of the island. There have been no births nor deaths during the year.

GENERAL REMARKS.

The Indians of this agency are industrious and considerably improved in every way. The employment of oriental labour has displaced the Indian in certain lines, such as cutting of cord-wood, farm work, &c. Being unable to procure work away from home except during the fishing season, when they are in demand, the Indians are rapidly copying the methods of the white man, and remain at home to cultivate the land and attend to their stock. They use the latest improved machinery on their farms and earn a great deal of money by cutting and harvesting the crops of the white settlers; especially is this the case in Cowichan district. In this last-mentioned district

they own no less than seven self-binders and one steam thresher. Their stock is greatly improved in quality, which is due to the introduction into the province of better breeds of cattle, horses, swine and sheep. Great praise is due to the missionaries throughout the agency for their indefatigable efforts to improve the condition of the Indians. Their education is well attended to by the various teachers employed and the result of their work is to be seen in a higher tone of morality being observed by the Indians.

I have, &c.,
W. R. ROBERTSON,
Indian Agent.

BRITISH COLUMBIA,
FRASER RIVER AGENCY,
NEW WESTMINSTER, July 19, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on the affairs of this agency for the year ended June 30, 1904.

Tribe or Nation.—All the Indians of this agency belong to branches of the Salish nation.

BANDS IN THE CHILLIWACK DISTRICT.

Reserves.—The following bands occupy reserves in close proximity to each other in this district, comprising a total area of 3,841 acres, viz.: Aitchelitz, Kwawkwawapilt, Squiahla, Skwah, Skulkayn, Skway, Tsoowalie, Tzeachten and Kukkwewwioose.

Vital Statistics.—The nine bands named have a combined population of 321. There were 15 births and 10 deaths during the year, making an increase of 5 since last census.

Health and Sanitation.—The health of these Indians has been good, no contagious disease appearing among them during the year. Their houses and surroundings are kept clean, and vaccination has been attended to from time to time.

Occupations.—Their chief occupations are farming and fishing ; they also earn some money hop-picking and working as farm-hands for their white neighbours.

Buildings, Stock and Farm Implements.—They nearly all have very comfortable dwellings, and good barns and outbuildings, which are kept in good repair. Their stock is of good breed, and is being improved from year to year. Many of them have farm implements of their own, which are always well looked after.

Education.—These Indians take a great interest in the education of their children, some of whom attend school at the Coqualeetza Institute, Chilliwack, and others at St. Mary's Mission boarding school.

Religion.—These Indians take much interest in their respective churches, viz.: Roman Catholic, Methodist and Anglican.

Characteristics and Progress.—They are industrious and law-abiding, and are making steady progress.

Temperance and Morality.—They are temperate and moral.

BANDS ON HOWE SOUND, BURRARD INLET AND SQUAMISH RIVER.

Reserves.—These bands, known as the Squamish Indians, and occupying reserves containing a total area of 6,806 acres, are as follows :—Burrard Inlet, No. 3, Kapilano, Squamish (Howe Sound), Seymour Creek, Mission (Burrard Inlet), and False Creek.

Vital Statistics.—The six bands have a combined population of 373. During the year there were 9 births and 9 deaths.

Health and Sanitation.—The health of these Indians has been good during the year. The sanitary condition of their villages is very good; and vaccination has been attended to.

Occupations.—Their chief occupations are fishing, hand-logging, and loading lumber in ships at the saw-mills; they also do some farming and gardening.

Buildings, Stock and Farm Implements.—They have good frame dwellings; and their barns and outbuildings are fairly good. They take good care of their stock during the winter; they are also careful of their implements.

Education.—During last summer a large addition to the Squamish Mission boarding school was completed, and the increased accommodation thus provided is a very material benefit to the pupils attending this institution. These Indians fully appreciate the advantages of education, and are most earnest in their desire to have their children educated.

Religion.—With the exception of a few who are not yet christianized, they are all Roman Catholics. They have a nice church on the Mission reserve, and are most attentive to their religious duties.

Characteristics and Progress.—They are industrious and law-abiding, and are making satisfactory advancement.

Temperance and Morality.—A majority of them are strictly temperate, and they are also a moral people.

CHEAM BAND.

Reserve.—The reserve of this band is situated on the south bank of the Fraser river, and about eighty miles from its mouth. It contains an area of 1,433 acres.

Vital Statistics.—The population of this band is 105, an increase of 3 since last census. There were 5 births and 2 deaths during the year.

Health and Sanitation.—The health of these Indians has been good, no sickness of a serious or contagious nature appearing among them. They keep their village clean and in a sanitary condition, and vaccination has been attended to.

Occupations.—The Indians of this band engage chiefly in agricultural and fishing pursuits; a little is also earned by them at hop-picking and working as farm-hands for their white neighbours.

Buildings, Stock and Farm Implements.—These Indians all have fairly good dwellings, barns and outbuildings. Their stock is well taken care of, as are also their farm implements.

Education.—They take a lively interest in education. Most of the children of school age attend St. Mary's Mission Indian boarding school.

Religion.—These Indians are all Roman Catholics, with the exception of one, who is a Methodist. They have a nice church in their village, which they attend regularly.

Characteristics and Progress.—They are industrious and law-abiding.

Temperance and Morality.—They are temperate, with a few exceptions, and moral.

CHEHALIS AND SCOWLITZ BANDS.

Reserves.—The Chehalis and Scowlitz Indians occupy reserves on Harrison river; Scowlitz reserve being at its mouth, and Chehalis about four miles up stream; they have a total area of 3,144 acres.

Vital Statistics.—The population of these two bands is 165. There were 9 births and 5 deaths during the year, an increase of 4 since last census.

Health and Sanitation.—The health of these Indians has been good during the year; their villages are kept clean and in a sanitary condition, and vaccination has been attended to.

Occupations.—They engage in farming, dairying, fishing and hunting; some of them have splendid farms, competing closely with their white neighbours.

Buildings, Stock and Farm Implements.—Most of these Indians have comfortable frame dwellings and fairly good stables and barns. They have some good stock, which is properly cared for. They have good farm implements, and take good care of them.

Education.—Most of the children of school age attend the Indian boarding school at St. Mary's Mission.

Religion.—They are all Roman Catholics, with the exception of five who belong to the Anglican Church. They are attentive to the instruction given by their spiritual advisers.

Characteristics and Progress.—They are industrious and law-abiding, and making steady progress.

Temperance and Morality.—They are a temperate and moral people.

COQUITLAM BAND.

Reserve.—The reserve of this band is situated on the Coquitlam river, about six miles from New Westminster; it contains an area of 208 acres.

Vital Statistics.—The population is 25; there were no births and but 1 death during the year.

Health and Sanitation.—The health of these Indians has been good ; their village is kept clean and in a sanitary condition, and vaccination has been attended to.

Occupations.—They engage chiefly in fishing and hunting; being near to New Westminster, they supply the local market with most of the fish and game required.

Buildings, Stock and Farm Implements.—Most of them have fairly good dwellings; they do not keep much stock, preferring to make their living by fishing and hunting.

Religion.—They are all Roman Catholics, and have a nice church on their reserve, which they attend regularly.

Characteristics and Progress.—They are industrious and law-abiding.

Temperance and Morality.—They are temperate and moral.

DOUGLAS, SKOOKUM CHUCK, SAMAHQUAM AND PEMBERTON MEADOWS BANDS.

Reserves.—These bands occupy reserves situated between the head of Harrison lake, along the Lillooet portage to Pemberton and contain a combined area of 3,485 acres.

Vital Statistics.—The population of these bands is 503. There were 19 births and 22 deaths during the year ; being a decrease of 3 since last census.

Health and Sanitation.—The health of these Indians on the whole has been good, most of the deaths being from whooping-cough, which appeared among the children, in October and November last, after their return home from the fishing on the lower Fraser river. Their villages are kept clean and in a sanitary condition, and vaccination has been duly attended to.

Occupations.—Fishing, hunting, packing and acting as guides for mining prospectors, also agricultural pursuits, constitute the occupations of these people.

Buildings, Stock and Farm Implements.—They have fairly good dwellings, barns and outhouses, many of the latter, however, being of log construction. Their horses are mostly Indian ponies; but their cattle are of good breeds, and are well cared for as are also their farm implements.

Religion.—These Indians are all Roman Catholics; they have three churches located at Douglas, Skookum Chuck and Pemberton Meadows, respectively, all of which are attended regularly.

Characteristics and Progress.—They are an industrious, law-abiding, simple, good people; notable among them might be mentioned Chief James, of Pemberton Meadows, to whom is largely due the credit for their progress and prosperity.

Temperance and Morality.—These Indians are temperate and moral, and strictly honest.

EWAWOOS AND TEXAS LAKE BANDS.

Reserves.—The reserves of these bands are situated, the former on the south bank of the Fraser river about two miles east of Hope, and the latter on the north bank of the Fraser river, about seven miles east of Hope. They contain a combined area of 893 acres.

Vital Statistics.—The population of the two bands is 63 ; there was 1 birth and no deaths during the year.

Health and Sanitation.—The health of these Indians has been good, their villages are kept clean and in a sanitary condition, and vaccination has been attended to from time to time.

Occupations.—The principal occupations of these Indians are fishing, hunting and agriculture, a little mixed farming being done by each family.

Buildings, Stock and Farm Implements.—Nearly all of them have comfortable dwellings, and good outbuildings, which they keep in good repair. Their farm implements are suitable for their requirements, and are well taken care of. Their stock is well cared for.

Education.—These Indians take a keen interest in education ; many of their children attend the Indian school at St. Mary's Mission.

Religion.—They are mostly Roman Catholics, a few being members of the Anglican Church ; all attend church regularly.

Characteristics and Progress.—They are an industrious and good people, living on good terms with their white neighbours.

Temperance and Morality.—They are temperate and moral.

HOPE BAND.

Reserve.—These Indians occupy a reserve on the north bank of the Fraser river, and about one hundred miles from its mouth, containing an area of 1,400 acres.

Vital Statistics.—This band has a population of 87. There were 2 births and 1 death during the year, being an increase of 1 since last census.

Health and Sanitation.—The health of these Indians has been good. Their village is kept clean and in a sanitary condition, and most of them have been vaccinated.

Occupations.—They engage chiefly in agriculture and fishing ; each family does more or less mixed farming, and fruit-culture is also carried on, as is also poultry-raising.

Buildings, Stock and Farm Implements.—They have comfortable dwellings, and fairly good barns and outhouses. Their stock is well cared for, and they put up a good supply of hay to last them during the winter. They have a good supply of farm implements, including a threshing-machine, all of which are carefully housed when not in use.

Education.—Many of the younger members of the band have been educated at the Indian boarding school at St. Mary's Mission ; they take a lively interest in education.

Religion.—These Indians are nearly all Roman Catholics ; they have a nice church on their reserve, where they attend regularly to their religious duties.

Characteristics and Progress.—They are industrious and law-abiding and fairly prosperous. The chief of the band, Pierre Ayessik, who was one of the first pupils educated at St. Mary's Mission school, is a very intelligent Indian, and much credit is due him for the advancement of the Hope Indians.

Temperance and Morality.—They are a temperate, moral, good people.

HOMALCO AND KLAHOOSE BANDS.

Reserves.—The reserves of these bands are situated in the vicinity of Bute inlet and Malaspina strait ; they contain a total area of 4,738 acres.

Vital Statistics.—These bands have a population of 162 ; there were 7 births and 5 deaths during the year, an increase of 2 since last census.

Health and Sanitation.—The health of these Indians has been good ; their villages are kept in a sanitary condition and vaccination has been attended to from time to time.

Occupations.—Fishing, hunting, farming and logging constitute the occupations of these Indians, their farming being on a small scale.

Buildings, Stock and Farm Implements.—Their buildings are mostly good frame dwellings ; they do not house their stock, which does fairly well, as the climate is less severe in winter than in some other parts of the agency. They keep no horses and have no implements except those used by hand.

Religion.—They are all Roman Catholics, and have a nice church at Squirrel cove and another at the mouth of Bute inlet, which they attend regularly.

Characteristics and Progress.—They are a simple-minded, kind-hearted, good people, and generally provide for all their requirements, seldom asking for assistance.

Temperance and Morality.—They are temperate and moral, not a half-breed being in their band.

KATSEY BAND.

Reserve.—The reserve of this band is situated on the north bank of the Fraser river, about ten miles from New Westminster. It contains 385 acres.

Vital Statistics.—The population of this band is 79 ; there were no changes during the year.

Health and Sanitation.—The health of these Indians has been good. Their village is kept clean and in a sanitary condition, and vaccination has been attended to from time to time.

Occupations.—These Indians engage chiefly in fishing, hunting and farming, each family doing some mixed farming.

Buildings, Stock and Farm Implements.—They have fairly good dwellings, barns and outbuildings, which are kept in good repair. They take good care of their stock; and also of their farm implements, which are all carefully housed when not in use.

Education.—They take much interest in education and send their children to St. Mary's Mission boarding school.

Religion.—They are all Roman Catholics, and have a small church on their reserve, which they attend regularly.

Characteristics and Progress.—They are temperate and moral, a few only are fond of liquor.

LANGLEY AND WHONOCK BANDS.

Reserves.—The reserves of these bands are situated, the former on McMillan island, in the Fraser river, about twenty miles east of New Westminster; and the latter on the north bank of the Fraser river, about twenty-four miles east of New Westminster; they contain a combined area of 1,452 acres.

Vital Statistics.—The population of these two bands is 62, there being no change in the population since last census.

Health and Sanitation.—The health of these Indians has been good; their village is kept clean and in a sanitary condition, and vaccination has been attended to from time to time.

Occupations.—They do considerable mixed farming, and fish for the canneries during the salmon-canning season.

Buildings, Stock and Farm Implements.—They have comfortable dwellings, and good barns and outbuildings, which are kept in good repair. Their stock is of good breed and well cared for, and their farm implements are carefully placed under cover when not in use.

Education.—They take a great interest in education, many of them having attended St. Mary's Mission boarding school.

Religion.—They are all Roman Catholics. They have a small church on each reserve, where they attend regularly to their religious duties.

Temperance and Morality.—They are strictly temperate and moral people.

MUSQUEAM BAND.

Reserve.—The reserve of this band is situated on the north arm of the Fraser river, about one mile from its mouth; it contains an area of 452 acres.

Vital Statistics.—This band has a population of 97; there was 1 birth and 1 death during the year.

Health and Sanitation.—Their health has been good; their village is kept clean and in a sanitary condition, and most of them have been vaccinated from time to time.

Occupations.—They do considerable mixed farming, and also fish for the canneries during the canning season.

Buildings, Stock and Farm Implements.—They have good dwellings, and fairly good outbuildings. They take good care of their horses and cattle, and their farm implements are carefully housed when not in use.

Education.—They send some of their children to the Coqualeetza Institute, and others to Kuper Island, and St. Mary's Mission schools.

Religion.—These Indians are mostly Roman Catholics, a few being Methodists.

Characteristics and Progress.—They are industrious and law-abiding, and making fair progress.

Temperance and Morality.—They are temperate and moral, a few only are fond of liquor.

MATSQUI BAND.

Reserve.—The reserve of this band is situated on the south bank of the Fraser river, about thirty miles from New Westminster, and contains an area of 1,072 acres.

Vital Statistics.—The population of this band is 44, being a decrease of 2 since the last census; there were 2 births and 4 deaths during the year.

Health and Sanitation.—The health of these Indians has been good; their village is kept in a sanitary condition, and vaccination has been attended to.

Occupations.—They all do more or less mixed farming, and also fish for the canneries during the salmon-canning season.

Buildings, Stock and Farm Implements.—Most of them have comfortable dwellings, and fairly good barns and outhouses; their horses and cattle are well looked after, and their farm implements are properly kept.

Education.—They take a keen interest in education, the young people having attended St. Mary's Mission school.

Religion.—They are all Roman Catholics and are attentive to their religious duties.

Temperance and Morality.—They are temperate and strictly moral.

NEW WESTMINSTER BAND.

Reserves.—These Indians have reserves at New Westminster and at Brownsville, comprising an area of 32 acres.

Vital Statistics.—These Indians have a population of 63; there were 2 births and 2 deaths during the year.

Health and Sanitation.—The health of these Indians has been good; their dwellings and surroundings are kept clean and in a sanitary condition.

Occupations.—They engage mostly in fishing and hunting and supply the local market with much of the fresh fish and game required; they also do some work for white people in the city.

Buildings, Stock and Farm Implements.—Most of these Indians have comfortable dwellings, some few own houses outside the reserve, on which they pay taxes; very little farming is done by them, just a little gardening, and they do not keep much stock.

Education.—They have a good desire to educate their children.

Religion.—These Indians are all Roman Catholics. They have a nice church on their reserve at Brownsville, where divine service is held regularly.

Temperance and Morality.—With but few exceptions they are temperate and moral.

NICOMEN AND SKWEAHM BANDS.

Reserve.—These Indians occupy two reserves on the north bank of the Fraser river, about forty-four miles from New Westminster, containing an area of 636 acres.

Vital Statistics.—The combined population of these two bands is 47, an increase of 1 since the last census. There were 2 births and 1 death during the year.

Health and Sanitation.—The health of these Indians during the past year has been good. Their villages are kept clean and in a sanitary condition, and vaccination has been attended to.

Occupations.—The chief occupations of these Indians are farming and fishing. Nearly all of them do a little mixed farming, and they fish for the canneries during the fishing season.

Buildings, Stock and Farm Implements.—These Indians have fairly good dwellings and outbuildings. Their stock is well cared for, as are also their farm implements.

Education.—They do not take much interest in education, and only very few of them can read or write.

Religion.—They are all Roman Catholics, but pay very little attention to religious matters. They have a small church at Skweahm, but it is used very seldom.

Characteristics and Progress.—They are a simple-minded people and in many respects follow old customs; but they are improving a little.

Temperance and Morality.—Most of them are fond of liquor, but are fairly moral.

SEMIAHMOO BAND.

Reserve.—The reserve of this band borders on the international boundary line, and fronts on Semiamu bay; it contains an area of 392 acres.

Vital Statistics.—This band has a population of 30. There was no change during the year in population.

Health and Sanitation.—The health of these Indians has been good; their village is kept clean and in a sanitary condition, and all of them have been vaccinated.

Buildings, Stock and Farm Implements.—Most of them have comfortable dwellings and outbuildings, which are kept in good repair. Their horses and cattle are similar to those of their white neighbours, and are well cared for; they also take proper care of their farm implements.

Education.—Only very few of them have received any education.

Religion.—They are all Roman Catholics, and have a small church on their reserve, in which they take a deep interest and attend regularly.

Characteristics and Progress.—They are an easy-going, simple people, who give very little trouble.

Temperance and Morality.—They are, on the whole, temperate and moral; but owing to their proximity to the American boundary line, they have many temptations as to the ease with which liquor can be procured; however their conduct gives very little cause for complaint.

OHAMIL BAND.

Reserve.—The reserve of this band is situated on the south bank of the Fraser river, about seventy-four miles east of New Westminster, and contains an area of 629 acres.

Vital Statistics.—The population of this band is 56. There were 2 deaths and 1 birth during the year, making a decrease of 1 since last census.

Health and Sanitation.—The health of these Indians has been good; their village is kept clean and in a sanitary condition, and they have been vaccinated from time to time.

Buildings, Stock and Farm Implements.—These Indians have good dwellings, barns and outbuildings, which they keep in good repair. Their horses and cattle are of good breed, and are well cared for. They are careful to keep their farm implements under cover when not in use.

Occupations.—The chief occupations of these Indians are farming and fishing; most of them do more or less mixed farming.

Education.—They all take a lively interest in the education of their children, who attend St. Mary's Mission boarding school.

Religion.—They manifest an earnest interest in religion. They have two small churches on the reserve; one Anglican and the other Roman Catholic.

Characteristics and Progress.—They are industrious and law-abiding, and are making fair progress.

Temperance and Morality.—They are a temperate and moral people.

POPKUM AND SQUAWTITS BANDS.

Reserves.—The reserves of these bands are situated on the south bank of the Fraser river, about sixty-five miles east of New Westminster, and contain a combined area of 5,326 acres.

Vital Statistics.—The population of these two bands is 56. There was 1 birth and no deaths during the year.

Health and Sanitation.—The health of these Indians has been good, and sanitary regulations are well observed.

Occupations.—The chief occupations of these Indians are farming and fishing, each family doing considerable mixed farming.

Buildings, Stock and Farm Implements.—Nearly all of them have good dwellings, and outbuildings, which they keep in good repair. They take good care of their stock, and also their farm implements.

Education.—Much interest is taken by them in education, the parents being anxious to send their children to school.

Religion.—They belong to the Roman Catholic, Anglican and Methodist Churches, respectively. Eeach denomination has its own church, which is attended regularly.

Characteristics and Progress.—They are industrious and law-abiding, and seldom cause any trouble.

Temperance and Morality.—They are temperate, with but few exceptions, and moral.

SECHELT BAND.

Reserve.—The reserve of this band is situated on Sechelt peninsula, Malaspina strait, and contains an area of 1,800 acres.

Vital Statistics.—This band has a population of 238 ; during the year there were 10 births and 8 deaths, making an increase of 2 since last census.

Health and Sanitation.—Their health has been good. Sanitary regulations are strictly observed in their village, and most of them have been vaccinated from time to time.

Occupations.—They engage largely in hand-logging ; they also do considerable fishing and hunting ; most of them have small gardens.

Buildings, Stock and Farm Implements.—All of them have comfortable dwellings, which are kept in good repair. Their stock runs at large the year round, and does fairly well.

Religion.—They are all Roman Catholics, and have a very fine church on their reserve. They are most attentive to their religious duties.

Characteristics and Progress.—They are an industrious, law-abiding and strictly honest people, and are making fair progress.

Education.—The parents are most anxious to see their children educated, but so far very few of them have attended school. During the past year they erected, on their Sechelt reserve (No. 2), a large boarding school which cost upwards of $8,000, and has accommodation for fifty pupils. This school, which is conducted by seven Roman Catholic Sisters, was opened on June 28, last, with an attendance of forty-two pupils to commence with.

Temperance and Morality.—They are temperate and moral, and although liquor is sold on the property adjoining the reserve, drunkenness is unknown among them.

SUMASS BAND.

Reserves.—The reserves of this band are situated at Miller's landing on the south bank of the Fraser river, and at Upper Sumass on Sumass lake ; and contain an area of 1,370 acres.

Vital Statistics.—This band has a population of 50 ; there was 1 death and no births during the year.

Health and Sanitation.—The health of these Indians has been good ; their villages are kept in a sanitary condition, and they have all been vaccinated.

Occupations.—Their chief occupations are mixed farming, fishing and hunting.

Buildings, Stock and Farm Implements.—They all have good dwellings, barns and outbuildings ; their stock is of good breed and well cared for. Their farm implements are carefully housed when not in use.

Education.—Only a small number of these Indians have attended school, and they do not take as much interest in education as most of the other bands in the agency.

Religion.—In this band there are twenty-seven Methodists and twenty-three Roman Catholics. Each denomination has its own church, and the Indians take much interest in religious matters.

Characteristics and Progress.—They are an easy-going people, rather indolent, but are not troublesome.

Temperance and Morality.—They are temperate and moral.

SLIAMMON BAND.

Reserve.—The reserve of this band is situated on Malaspina strait, and contains an area of 4,712 acres.

Vital Statistics.—The population of this band in 106 ; there were 5 births and 3 deaths during the year, making an increase of 2 since last census.

Health and Sanitation.—Their health has been good ; their village is kept clean and in a sanitary condition, and they have been vaccinated from time to time.

Occupations.—Their chief occupations are fishing, hunting and hand-logging; they also do some farming in a small way.

Buildings, Stock and Farm Implements.—They have fairly good dwellings, which they keep in good repair. They have very little stock.

Religion.—They are all Roman Catholics, and are much attached to their religion. They have a small church on their reserve, which they attend regularly.

Characteristics and Progress.—They are industrious and law-abiding and strictly honest.

Temperance and Morality.—They are temperate, with but few exceptions, and moral.

SKAWAHLOOK BAND.

Reserve.—The reserve of this band is situated on the north bank of the Fraser river, between Ruby creek and Hope; it contains an area of 196 acres.

Vital Statistics.—This band has a population of 23; there were 2 births and 1 death during the year, making an increase of 1 since last census.

Health and Sanitation.—The health of these Indians has been good; their village is kept in a sanitary condition, and vaccination has been duly attended to from time to time.

Occupations.—Mixed farming and fishing constitute the chief occupations of this band.

Buildings, Stock and Farm Implements.—These Indians have fairly good dwellings and outbuildings; they take good care of their stock; their farm implements also are properly taken care of.

Religion.—They are all Roman Catholics, and are much attached to their religion; they have a small church on their reserve, where divine service is held regularly.

Characteristics and Progress.—They are a simple-minded and law-abiding people, living on good terms with their neighbours.

Temperance and Morality.—They are temperate and moral.

TCHEWASSAN BAND.

Reserve.—The reserve of this band is situated on the gulf of Georgia, near Point Roberts, and contains an area of 604 acres.

Vital Statistics.—The population of this band is 45; there were 2 deaths and 1 birth during the year.

Health and Sanitation.—The health of these Indians has been good; their village is kept clean and in a sanitary condition, and vaccination has been attended to.

Occupations.—Farming and fishing are the chief occupations of these Indians. They fish for the canneries during the canning season, and work on their farms during the rest of the year.

Buildings, Stock and Farm Implements.—They have comfortable dwellings and fairly good barns and outbuildings. Their horses and cattle are of good breed, and are well taken care of during the winter. They have some good farm implements, which are well cared for.

Education.—A few of them have attended Kuper Island school.

Religion.—They are all Roman Catholics, and are now much more attentive to their religious duties than in the past.

Characteristics and Progress.—They are a simple, good-natured people, and usually provide well for those depending on them.

Temperance and Morality.—They are a moral people, but some of them are fond of liquor.

YALE BAND.

Reserve.—The reserve of this band is situated on the Fraser river about one hundred and twelve miles from its mouth. It contains an area of 1,100 acres.

Vital Statistics.—The population of this band is 83. During the year there was 1 birth and 3 deaths.

Health and Sanitation.—The health of these Indians has been fairly good. Sanitary regulations are well observed, and vaccination has been attended to from time to time.

Occupations.—The chief occupations of these Indians are fishing, hunting and farming. A few of them are employed by the Canadian Pacific Railway Company as sectionmen.

Buildings, Stock and Farm Implements.—They all have fairly good dwellings and outbuildings. Their stock is well cared for. Their farm implements are carefully kept under cover when not in use.

Education.—They take considerable interest in education ; some of their children attend All Hallows school, and others St. Mary's Mission school.

Religion.—Sixty-four of these Indians belong to the Roman Catholic Church, and nineteen to the Anglican. Each denomination has its own church in the village, where divine service is held regularly.

Characteristics and Progress.—These Indians are industrious and law-abiding, and live on good terms with their neighbours.

Temperance and Morality.—They are a temperate and moral people.

GENERAL REMARKS.

The Indians of this agency are, as a rule, making steady progress. Their houses are being improved, better furnished and more neatly kept. They dress well and live more like their white neighbours than was formerly the case. These improvements are more noticeable among those who have attended school.

The Coqualeetza industrial school at Chilliwack, and the boarding schools at St. Mary's Mission, Yale, and Squamish Mission, all continue to do excellent work.

To the devoted principals of these schools, and their painstaking assistants, too much praise cannot be given for the care and attention bestowed upon the children under their charge.

I have, &c.,

R. C. McDONALD,

Indian Agent.

BRITISH COLUMBIA,

KAMLOOPS-OKANAGAN AGENCY,

KAMLOOPS, July 26, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit my annual report on the affairs of this agency for the fiscal year ended June 30, 1904.

Location.—The Kamloops-Okanagan agency is located in and scattered over the greater portion of Yale district, immediately north of the international boundary line; the district contains approximately 24,000 square miles. The agency contains an aggregate acreage of 333,570 acres.

Tribe or Nation.—These Indians are said to belong to the Salish and Tinneh nations. Locally they are classified as Thompson River, Shuswap and Okanagan tribes, and speak dialects known by these terms.

Most of the younger one understand and speak English fairly well.

Natural Subdivisions.—The agency is divided naturally by the rivers which drain it, into the Fraser, Thompson, Nicola, Similkameen and Okanagan districts.

ADAMS LAKE OR HALTKAM BAND.

Reserves.—The reserves of this band are situated near the foot of Little Shuswap lake and at Adams lake. They contain an area of 7,188 acres, comprising agricultural, grazing and timber lands.

Vital Statistics.—The population is 90. There have been 9 deaths and 10 births during the year.

Health and Sanitation.—The health of these Indians during the year has been good. No epidemic has appeared among them, and they have had little medical attendance. A great majority of them have been vaccinated from time to time; they keep their houses and persons fairly clean.

Occupations.—These Indians, since procuring water for irrigation purposes, have devoted themselves largely to farming, for which purpose a considerable portion of their land is well adapted. They raise horses and cattle, and add to these industries by fishing, hunting and working as labourers in different capacities.

Buildings.—Their houses and other buildings are mostly of logs, and while comfortable enough, they are not of a very good quality. They have under consideration the means of procuring lumber and improving these.

Stock.—These Indians have good horses for farm and saddle purposes, which they continue to improve, and some cattle and other domestic stock.

Farm Implements.—They are well supplied with farm implements and machinery of nearly every kind usually found on well regulated and up-to-date farms, self-binders, mowers, horse-rakes, disc-harrows, ploughs, wagons, democrats and a small threshing-machine.

Education.—There are no schools among them. Some children have attended the industrial school at Kamloops, and some have been taught to read and write short-hand Chinook.

Religion.—They all belong to the Roman Catholic Church, have one church building, and are religiously inclined.

Characteristics and Progress.—These Indians are very industrious, and have made rapid progress in farming in recent years. They are law-abiding, peaceable people.

Temperance and Morality.—They are usually temperate and moral. It is rarely that they indulge in intoxicants.

ASHCROFT OR STLAHL BAND.

Reserves.—The reserves of this band, three in number, are located on a plateau on the right bank of the Thompson river, opposite to the town of Ashcroft, and at McLean's lake. They contain an aggregate area of 5,243 acres, combining agricultural, grazing and timber lands.

Vital Statistics.—The population is 51. There were 2 births and 1 death during the year.

Health and Sanitation.—The general health of these Indians has been fair. No epidemic has appeared among them. Sanitary precautions are fairly well observed. The Indians have been vaccinated. Their dwelling-houses are mostly deserted in the warm season, and their drinking water is good.

Occupations.—These Indians carry on a system of mixed farming and stock-raising. The supply of water for irrigation purposes is too limited for extensive farming. They also fish and hunt, and are employed as freighters and packers, and as labourers on farms and as cowboys.

Buildings.—They have log buildings, mostly of the early class of such. A few fairly good dwellings have been more recently constructed.

Stock.—They have some good horses for farming and team work, and others suitable for pack and riding purposes; also some cattle.

Farm Implements.—They are fairly well supplied with farm implements for their requirements.

Education.—They have no system of education among them.

Religion.—They all belong to the Anglican Church; they have a substantial log church, and take a lively interest in religious matters.

Characteristics and Progress.—These Indians are fairly industrious, but as they work quite largely for wages, they do not as a rule accumulate much. The band has improved the reserve very much by fencing.

Temperance and Morality.—These Indians are fairly temperate and moral.

BONAPARTE OR TLUHTAUS BAND.

Reserves.—The reserves of this band, five in number, are located on the Thompson and Bonaparte rivers, on Hat creek and Loon lake. They contain 61,113 acres approximately.

Vital Statistics.—The population is 158. There have been 5 births and 5 deaths during the year.

Health and Sanitation.—The general health has been usually good. No contagious disease has broken out among them. Many of them have been vaccinated; their houses, as to cleanliness and ventilation, are not up to the average of Indian houses. In the summer season the houses are not in constant occupation.

Occupations.—They raise some farm produce, chiefly on Hat creek, have a good-sized herd of horses and some cattle, but they depend more for a living on fishing and hunting, working as labourers and cowboys, with their horses for white settlers, than on what they can produce from their small farms.

Buildings.—They have log buildings of an inferior class. More recently the chief has built a fairly good dwelling, and they have an imposing church edifice, which gives a better appearance to the village.

Stock.—They have a number of horses, some suitable for farm purposes, but mostly a fair class of saddle horse; and some cattle.

Farm Implements.—They have farm implements suited to their present needs.

Education.—They have no means of education other than that afforded some of them at the Kamloops industrial school, and the instruction some of them have received in shorthand Chinook.

Religion.—They all belong to the Roman Catholic Church, and they devote considerable time to church matters.

Characteristics and Progress.—Many of these Indians are good workers, but they are nomadic in their habits, never continuing long at one occupation, and consequently have not laid up much for a future time. They have made some progress recently in the direction of fencing and otherwise improving the reserve at Bonaparte.

Temperance and Morality.—They have in the past been too much addicted to the use of intoxicants, when they could be procured, and unfortunately in their position such were too easily obtainable. I am pleased to report, however, that in this respect the condition of these Indians has improved with improved facilities for enforcing the Liquor Act.

BOOTHROYD (SUUK, KAMOOS, NKATSAM AND CHINOOK) BAND.

Reserves.—The reserves of this band, ten in number, are located slightly on the left bank of the Fraser river. They contain an area of 1,600 acres. A small portion of this land, chiefly about Nkatsam, when cleared, produces good crops. The greater portion of the land is heavily timbered and rocky.

Vital Statistics.—The population is now 154. There have been 4 births and 6 deaths during the year.

Health and Sanitation.—There has been no epidemic among these Indians; they have been vaccinated and their houses are fairly clean and well ventilated.

Occupations.—These Indians raise considerable quantities of vegetables and fruit on their small farms. They procure large quantities of fish, and do considerable hunting and trapping; they also mine quite extensively, and work as labourers on the railway and otherwise.

Buildings.—They have a fair class of log houses, which they keep improving.

Stock.—They have some small horses, used for riding and packing, and a better class of cattle than usually found among Indians on this section of the Fraser river.

Farm Implements.—Their requirements in this respect are pretty well supplied.

Education.—They have no means of education.

Religion.—All these Indians belong to the Anglican Church. They have one small church-building, much improved during the year, and they are good-living people.

Characteristics and Progress.—These Indians are very industrious and good workers. As such they are very highly spoken of by employers. Those living at Nkatsam are comparatively well-to-do, and always appear to have money.

Temperance and Morality.—They are exceptionally temperate and moral people.

BOSTON BAR BAND.

Reserves.—The reserves of this band number seven, located around Boston Bar, North Bend and Scaucy. They contain 628 acres. They consist of small patches of tillable land, the rest being rocks and timber.

Vital Statistics.—The population is 150. There have been 6 births and 9 deaths during the year.

Health and Sanitation.—No epidemic has visited these Indians, and for the most part, especially those living in the vicinity of North Bend, they keep their houses very clean and well ventilated. The large percentage of deaths arises apparently from natural causes. These Indians get little medical attendance or medicines. Sanitary conditions generally are good.

Occupations.—These Indians raise hay, fruit, and vegetables. They depend more, however, on mining, fishing and hunting, working on the railway, and basket-making among the women, for a living.

Buildings.—About North Bend the Indians have a rather good class of buildings. The majority of them are frame; in other places they are not so good, although considerable improvements have recently been made.

Stock.—They have a number of saddle and pack horses, but very few cattle. They are unable to provide winter feed for stock, and winter most of their horses in the Nicola country.

Farm Implements.—They have enough for their needs.

Education.—Some have been educated in the industrial school at Kamloops; otherwise they have no means of education.

Religion.—They are about evenly divided between Roman Catholics and Anglicans. The latter have a good church at North Bend and all evince considerable interest in church matters.

Characteristics and Progress.—They are steady, good-working Indians, but are unable to make much progress in the direction of acquiring wealth. Chief George, of North Bend, appears to lead in this respect.

Temperance and Morality.—In these respects they compare well with other bands.

COOK'S FERRY BAND.

Reserves.—The reserves of this band, numbering fifteen, are located on both banks of the Thompson river, around Cook's Ferry and Spatsum, and in Tuile and Highland valleys. They consist of bench-lands along the river, containing farming and grazing lands, with sparsely timbered land higher up and some meadow-land in the valleys. The aggregate area is 9,110 acres.

Vital Statistics.—The population is 204. There have been 10 births and 11 deaths during the year.

Health and Sanitation.—No epidemic has visited the band and the general health has been good. The Indians have been vaccinated, and sanitation is good.

Occupations.—These Indians carry on mixed farming and stock-raising, fish and hunt a little, and work as labouring hands on farms and on the railway, and as cowboys. In the immediate vicinity of Cook's Ferry the soil is too dry for successful crop-growing. Further up the river, on the Pemynoos reserve, conditions are better, and considerable produce is grown.

Buildings.—Their buildings are mostly of logs, and while fairly comfortable, cannot be classed as good.

Stock.—They possess a fairly good lot of horses for farming and saddle purposes, and some of the Indians have nice herds of cattle and some pigs and sheep.

Farm Implements.—They are well provided with farm implements.

Education.—There is no system of education among them.

Religion.—They all belong to the Anglican Church. They have two church buildings—one at Cook's Ferry and one at Pemynoos—and they take an active interest in church matters.

Characteristics and Progress.—These Indians are industrious. Around Cook's Ferry they do not make much progress. On Pemynoos some of them are well-to-do. Kyume and Johnny Pasco have more stock and are in advance of the others in farming. The Indians are law-abiding.

Temperance and Morality.—These Indians are temperate and moral.

DEADMAN'S CREEK OR STICHISTAN BAND.

Reserve.—The reserve of this band is situated on Deadman's creek. It contains an area of 20,134 acres, composed of farming, fine grazing and timber lands.

Vital Statistics.—The population is 118. There have been 4 births and 2 deaths during the year.

Health and Sanitation.—The general health of the Indians has been good, and no infectious disease has appeared among them. They have been vaccinated. Their houses are too small, and being mud-roofed for the most part, do not admit of good ventilation. During the heat of summer they are not much occupied and their sanitary conditions are good.

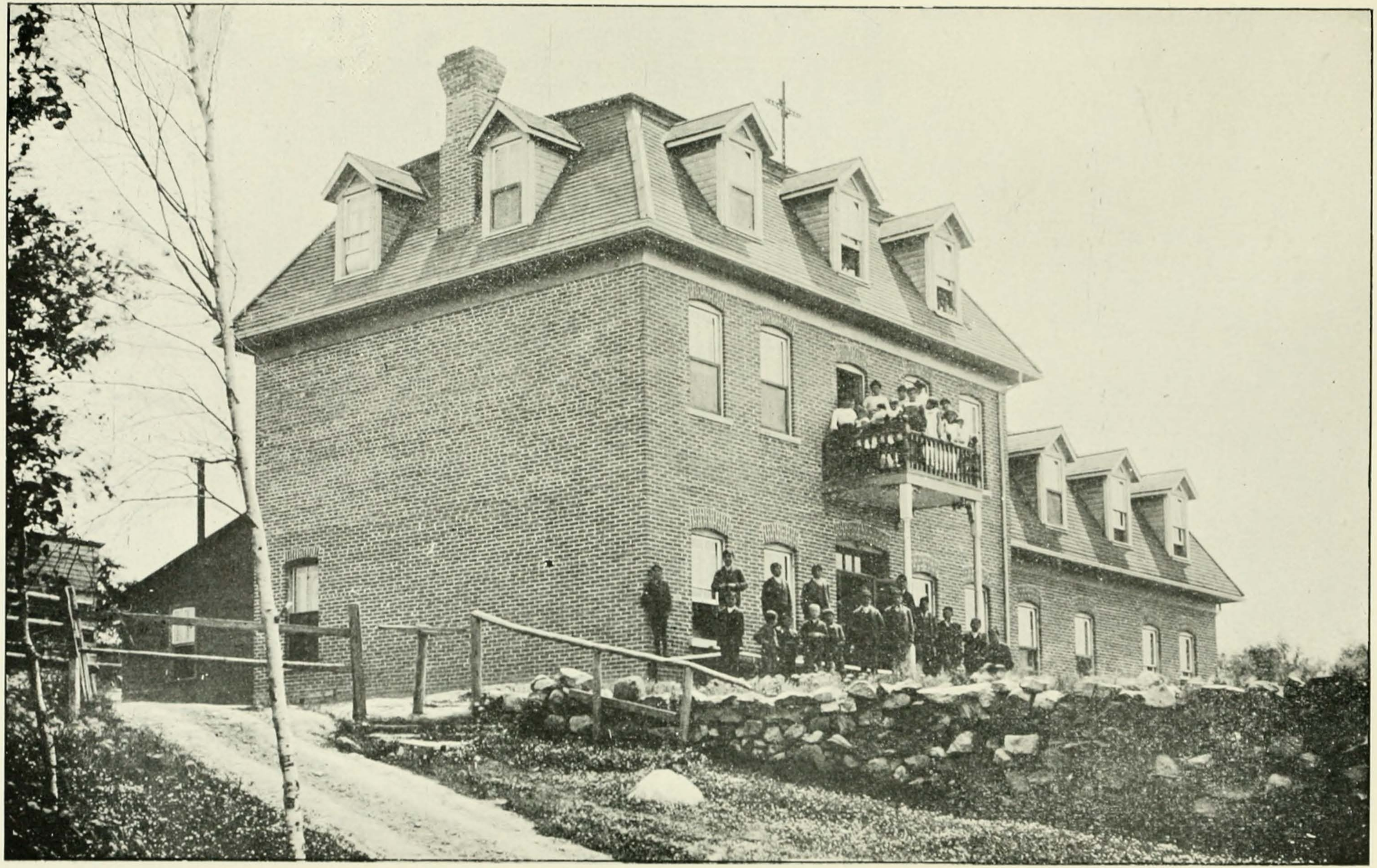
Occupations.—These Indians farm a little, and raise some stock, chiefly horses, fish and hunt, and work as day labourers. The chief occupation of the younger men is that of cowboys, and they are good at the work.

Buildings.—Their buildings are of logs, and all the older ones are mud-roofed. A number of them might be classed as huts. They are warm in winter, but do not admit of good ventilation. Lately a few substantial, shingled houses have been built.

Stock.—They have a fair number of horses, a few being suitable for farming and teaming, but the majority are good saddle horses. They also raise cattle.

Farm Implements.—They have sufficient farm implements.

Education.—They have no schools. Several children have attended the Kamloops industrial school, and some can write shorthand Chinook.



Rat Portage (R. C.) Boarding School, Ont. [241]

Religion.—They all belong to the Roman Catholic Church. They have one fairly good church-building, and attend service regularly.

Characteristics and Progress.—These Indians have not enjoyed the reputation of being industrious, though they have been considered good cowboys, as nearly all Indians are. During the past two or three years they have shown a disposition to devote themselves more to farming, and there has become a very marked improvement in the appearance of their reserve. An irrigation ditch of nearly three miles has been built, and the land cleared and cropped and a large extent of fencing done.

Temperance and Morality.—In the matter of abstaining from intoxicants, these Indians are a long way in advance of a few years ago. For the past year there has been nothing serious in this respect to complain of.

KAMLOOPS BAND.

Reserves.—The reserves of this band, numbering five, are situated mainly at the confluence of the North and South Thompson rivers, immediately opposite the city of Kamloops. They contain an area of 33,379 acres, comprising good agricultural, grazing, meadow and timber lands.

Vital Statistics.—The population is 244. There have been 12 births and 11 deaths during the year.

Health and Sanitation.—The general health of these Indians has been usually good. No epidemic has prevailed. They have been vaccinated, and sanitary conditions are favourable. Care is taken in spring to remove and burn any accumulation of garbage which may have collected about the village during the winter season. They are building larger houses, better ventilated and divided into compartments. Cleanliness in houses and persons is receiving more attention. The sources of water-supply are running streams which are free from impurities.

Occupations.—These Indians grow considerable hay and vegetables, raise stock, chiefly horses, fish and hunt, and work as farm labourers and cowboys, in the latter occupation employing their horses.

Buildings.—The older class of their buildings was of a rather poor order. More recent ones are of better design and more up-to-date, being shingle-roofed, larger in every respect, and better lighted and ventilated. A good deal of attention is now being given to improvement in this direction.

Stock.—They have large herds of horses, which are becoming much improved; and some cattle. The demand for horses of all classes here has been good, and the Indians have taken the opportunity to dispose of a good many of their smaller stock.

Farm Implements.—They have a good supply of wagons, democrats, buggies, ploughs, mowers, horse-rakes, harness and saddles.

Education.—A good many children have attended, and are attending the industrial school on the reserve.

Religion.—They all belong to the Roman Catholic Church; they have one fine church-building, and are faithful adherents.

Characteristics and Progress.—These Indians are fairly industrious, but travel about a good deal and spend as they go; consequently they have never much in store for a rainy day. They succeed in making a comfortable living.

Temperance and Morality.—Too many of these Indians have acquired a fondness for intoxicants, and whenever possible they will procure such. I am, however, pleased to report that the nuisance has been kept pretty well under control by the authorities, assisted by the better class of Indians themselves; and that in the great majority of cases where liquor has been supplied, the offenders have been brought to speedy trial and conviction; old Chief Louie has rendered valuable assistance. These Indians are fairly moral in other respects.

KANAKA BAR BAND.

Reserves.—The reserves of this band, four in number, are located on both banks of the Fraser, ten miles below Lytton. Their area is 500 acres.

Vital Statistics.—The population is 56. There have been 2 births and 2 deaths during the year.

Health and Sanitation.—The general health has been good ; no epidemics have appeared among them. Their houses are small and not well ventilated, nor are they as well kept as many Indian houses.

Occupations.—These Indians can produce very little from the soil. Fishing and mining are their chief occupations.

Buildings.—They have a comparatively poor class of log buildings.

Stock.—They have a few horses for saddle and packing purposes, and a few cattle.

Farm Implements.—They are supplied with implements for their requirements.

Education.—They have no means of education.

Religion.—They all belong to the Anglican Church. They have no church-building. When they can, they attend at Lytton.

Characteristics and Progress.—A number of them are hard workers in those pursuits which they follow, but they are unable to make much progress. They are inoffensive and law-abiding.

Temperance and Morality.—They are temperate and moral.

LYTTON BAND.

Reserves.—The reserves, twenty-seven, of this band, which is composed of several small bands, are dotted along both banks of the Fraser from Lytton to Nesikeep, twenty-five miles above. The combined area is 10,292 acres, composed of table-land and mountain slopes, where fruits, cereals and vegetables grow well with irrigation. Further up from Lytton there is a fair amount of pasturage.

Vital Statistics.—The population is 463. There have been 18 births and 20 deaths during the year.

Health and Sanitation.—No epidemic has visited these Indians. They have been vaccinated. Their houses for the most part are roomy, well ventilated and lighted and clean. Sanitary conditions are pretty well observed and water is pure.

Occupations.—These Indians are able to produce a good deal of grain, hay, vegetables and fruit. They raise considerable stock, fish and hunt, mine, and work as labourers, freighters and section-hands in various ways.

Buildings.—They have a very fair class of buildings, among them a number of frame ones.

Stock.—They have horses—some good work horses—but mostly of lighter build, for pack and saddle horses, and some cattle.

Farm Implements.—They have a good supply of such.

Education.—They have no means of education, except that afforded by an attendance at All Harrows, Yale, and St. George's school, the latter started over a year ago, near Lytton.

Religion.—They all belong to the Anglican Church. Their chief building is at Lytton. They are very attentive.

Characteristics and Progress.—They are mostly very industrious Indians, and they are making good progress in the cultivation of their land and improving their dwellings.

Temperance and Morality.—They are temperate and moral.

NICOMEN BAND.

Reserves.—The reserves, five in number, of this band are situated on both banks of the Thompson river between Lytton and Cook's Ferry. They contain an area of 2,976 acres, consisting of bench and mountain lands of poor quality.

Vital Statistics.—The population is 48. There have been 2 births and 2 deaths during the year.

Health and Sanitation.—No epidemic has visited these Indians, and their health has been good. They have been vaccinated, and sanitary conditions are favourable.

Occupations.—These Indians raise small quantities of grain, hay and vegetables; fish and hunt, and raise a little stock. One of their chief means of living is mining for gold.

Buildings.—Their buildings are of logs, and only of fair quality.

Stock.—They have a limited number of pack and saddle ponies, and a few cattle.

Education.—They have no means of education.

Religion.—They all belong to the Anglican Church, but have no building.

Characteristics and Progress.—These Indians are industrious in their way, but little progress is apparent.

Temperance and Morality.—They are temperate and moral.

NICOLA (LOWER) BAND.

Reserves.—The reserves of this band, to the number of thirteen, are located along the Nicola river from near its mouth to Nicola lake. Hamilton Creek reserve is also included. The total area is 3,191 acres, containing a good percentage of agricultural and grazing lands.

Vital Statistics.—The population is 366. There have been 16 births and 15 deaths during the year.

Health and Sanitation.—The general health of these Indians has been good. No contagious diseases have appeared among them. They have been vaccinated ; their houses are well kept, and sanitary conditions generally are good.

Occupations.—These Indians farm and raise stock extensively. They fish and hunt but little, and engage as labourers and cowboys. Their chief occupation, apart from tilling their farms, is freight-hauling, for which they are well equipped with horses and wagons. They do most of the freighting carried on between Cook's Ferry and Similkameen.

Buildings.—They have a good class of buildings.

Stock.—They have good herds of superior horses. Some of them can turn out as fine a four-horse freight team as can be found anywhere. They have also a number of good cattle. They have some fine stallions and mares for breeding purposes.

Farm Implements.—They are well supplied with all kinds of farm implements usually required.

Education.—No means of education exists among them.

Religion.—The majority of them—three hundred and thirty—are Anglicans ; the remainder are Roman Catholics. The former have a good church at Mammet reserve, and a small one at Zoht. The Roman Catholics have no building. All manifest considerable interest in religious matters.

Characteristics and Progress.—These Indians are very industrious. Those occupying the Mammet reserve are among the most advanced in the agency in the cultivation of their land. They are making substantial progress, and are improving their condition. They are law-abiding.

Temperance and Morality.—They are fairly temperate and moral.

NICOLA (UPPER) OR SPAHAMIN BAND.

Reserves.—The reserves, eight in number, of this band are located near the head of Nicola lake and around Douglas lake. They have an area of 30,888 acres, comprising good farming land and some of the best grazing lands in the province.

Vital Statistics.—The population is 192. There have been 10 births and 10 deaths during the year.

Health and Sanitation.—No epidemic has visited these Indians, and their general health has been good. Sanitary conditions are most favourable. They have been vaccinated.

Occupations.—These Indians carry on mixed farming, and quite extensive stock-raising ; they fish and hunt to some extent, and engage in freighting, and as labourers and cowboys.

Buildings.—They have a good class of buildings, and are improving the same.

Stock.—They have large herds of superior horses, and good herds of well-bred cattle ; as good animals can be procured from these Indians as can be found anywhere in the country.

Farm Implements.—They are well supplied with all necessary farm implements.

Education.—There are no schools among them. Some of them have been educated in the Kamloops industrial school.

Religion.—They all belong to the Roman Catholic Church ; they have two good churches, and they show a great interest in religious matters.

Characteristics and Progress.—These Indians are very industrious and up-to-date. Many of them are in consequence well-off. Johnny Chilliheetsa, the chief, a model Indian in every respect, has upwards of a thousand head of as good horses and cattle as can be found on the majority of stock ranches. Jimmy Michell is also a well-to-do Indian, and others in a lesser way could be mentioned.

Temperance and Morality.—They are exceptionally temperate and moral.

NESKAINLITH OR HALANT BAND.

Reserves.—The reserves of this band, numbering three, are located on the Thompson river near Shuswap lake. They have an area of 6,996 acres, composed of good agricultural, grazing and timber-lands.

Vital Statistics.—The population is 152. There have been 8 births and 10 deaths during the year.

Health and Sanitation.—The general health has been good. No epidemic has appeared, and sanitary conditions are good.

Occupations.—These Indians now farm extensively, and raise considerable stock. They fish and hunt to some extent, and are employed as labourers in various ways. Farming is their chief means of living.

Buildings.—They have a fair class of buildings, and are improving the same.

Farm Implements.—They are well supplied with all modern farm implements and machinery.

Characteristics and Progress.—These Indians are very industrious, up-to-date, peaceable and law-abiding. They have made very marked advancement in farming since the completion of the irrigation ditches.

Temperance and Morality.—They are very temperate and moral.

NORTH THOMPSON OR CHUCHUQUALK BAND.

Reserves.—The reserves of this band are situated on the North Thompson river, about fifty miles from Kamloops. The total area is 3,239 acres, comprising good farming and timber lands.

Health and Sanitation.—There has been no epidemic among these Indians. Their houses are not so roomy nor well ventilated and kept as the majority of other bands. The Indians do not occupy them much during the warm season.

Vital Statistics.—The population is 130. There have been 5 births and 5 deaths during the year.

Occupations.—These Indians farm to some extent, mostly hay and vegetables. They have no convenient market for produce. They raise some stock. Fishing and hunting, chiefly the latter, occupy much of their time as compared with other Indians. They are employed as packers, labourers and cowboys.

Buildings.—They have a comparatively poor class of buildings. Some little improvement is apparent lately. Lumber is scarce with them.

Stock.—They possess a number of fairly good horses and cattle.

Farm Implements.—They have sufficient farm implements.

Education.—They have no schools. Some have received instruction at the Kamloops industrial school.

Religion.—They all belong to the Roman Catholic Church ; have one comparatively good building, and are among the most faithful adherents.

Characteristics and Progress.—These Indians are industrious in their way, but somewhat nomadic, roaming a good deal through the wilds of this country. They are making some progress in farming. They are a very peaceable and law-abiding people.

Temperance and Morality.—They are a highly temperate and moral band.

OKANAGAN OR NKAMAPLIX BAND.

Reserves.—The reserves, ten in number, of this band are located around the head and both sides of Okanagan lake. They have an area of 29,790 acres, good farming and grazing land.

Vital Statistics.—The population is 238. There have been 12 births and 13 deaths during the year.

Health and Sanitation.—The general health has been very good. No epidemic has prevailed. Sanitary conditions about their houses and villages are fair.

Occupations.—These Indians farm very extensively ; fish a little, work as farmhands and cowboys, and derive quite a revenue yearly from hop-picking in the vicinity ; they also raise considerable stock. They are the largest grain-producers in the agency.

Buildings.—They have a very fair class of buildings, a good number of them frame.

Stock.—They have numerous horses, adapted for all purposes, and some cattle.

Farm Implements.—They are well supplied with all kinds of farm implements, including self-binders and a steam thresher.

Education.—There are no schools among them. Some attend the Kamloops industrial school.

Religion.—All but one, the chief, Louis Jim, are considered Roman Catholics. The chief appears to have a form of religion of his own—semi-pagan and Christian. They have two churches at the head of the lake, and one at Duck lake. Those of one section of them are strict adherents ; those of another pay little attention to church matters.

Characteristics and Progress.—These Indians are very industrious, and they farm very well. Some of them are inclined to be wild, and infractions of the law have been frequent. They have improved considerably in this respect, and have a wholesome dread of the consequences of disregarding the law. The profits from grain-growing are not large, and consequently they do not do much beyond making a good living.

Temperance and Morality.—Some of them have become addicted to the use of intoxicants when such can be procured. Infractions of the law in this respect are, however, pretty well looked after, and such offences kept at a minimum. The standard of morality among them is probably not much above the average of Indians.

OREGON JACK CREEK (PASCO NEPA) BAND.

Reserves.—The reserves of this band, numbering seven, are situated on both sides of the Thompson river, a short distance below Ashcroft, and on Oregon Jack creek. The area is 2,380 acres, mostly inferior in quality.

Vital Statistics.—The population is 20. There has been 1 birth and 1 death during the year.

Health and Sanitation.—The general health of these Indians has been good, and sanitation is also good.

Occupations.—These Indians raise some farm produce. They fish and hunt, and work as labourers.

Buildings.—They have a fair class of log buildings.

Stock.—They have a fair proportion of stock, chiefly horses.

Farm Implements.—They have sufficient implements.

Education.—These Indians have no means of education.

Religion.—They all belong to the Anglican Church. They have no building.

Characteristics and Progress.—They are industrious, but are unable to produce much from their land. They make a comfortable living.

Temperance and Morality.—They are temperate and moral.

OSOYOOS OR NKAMIP BAND.

Reserves.—The reserves of this band, two in number, are located at the head of Osoyoos lake and at the foot of Dog lake. They contain an area of 32,168 acres ; there are some fair farming and fruit-growing lands, but the greater portion is grazing.

Vital Statistics.—The population is 70. There have been 5 births and no deaths during the year.

Health and Sanitation.—No contagious disease has visited this band. The death-rate has been unusually low. Their houses are fairly clean, and other sanitary conditions are good. The Indians have recently been vaccinated.

Occupations.—These Indians produce cereals, vegetables, and fruit, and raise stock ; they fish and hunt, and work in various capacities.

Buildings.—The older style of buildings are poor log structures. More recent ones show a decided improvement.

Stock.—These Indians have a good number of fair horses, and some cattle.

Farm Implements.—They are well supplied with farm implements.

Education.—They have no schools.

Religion.—They all belong to the Roman Catholic Church, have one old-time building, and are strict observers of religious duties.

Characteristics and Progress.—These Indians are fairly industrious. Some of them have nice fruit orchards, and raise considerable fruit, which commands a high market. Within the year considerable planting has been done. Baptise and John Stilkiah are the best examples in this respect. They are law-abiding.

Temperance and Morality.—They are temperate and moral.

PENTICTON BAND.

Reserves.—The reserves of this band, numbering three, are located at the foot of Okanagan lake, No. 3 being on the west side of the lake twelve miles from No. 1 ; they contain good natural meadows, excellent farming and fruit-growing lands, and fine grazing lands. The total area is 48,694 acres.

Vital Statistics.—The population is 152. There have been 9 births and 4 deaths during the year.

Health and Sanitation.—No epidemic has visited these Indians, and there has not been much sickness among them. Their houses are well kept, and sanitation is good. They have been vaccinated.

Occupations.—These Indians engage in general farming, stock-raising and fruit-growing ; fish and hunt, freight and pack and work as labourers and cowboys.

Buildings.—Their dwellings of the older class are but medium. More recently some very neat and comfortable houses have been built.

Stock.—They possess a goodly number of fair-class horses for different purposes, and cattle of good quality.

Farm Implements.—They are well supplied with farm implements.

Education.—They have no schools.

Religion.—They all belong to the Roman Catholic Church. They have one respectable church-building, and show much interest in church matters.

Characteristics and Progress.—They are industrious and many of them are well-to-do. They are located in the garden of the country. They are devoting considerable attention to fruit-growing. Their condition has very much improved within the last year or two, and better progress is being made.

Temperance and Morality.—Their habits of temperance have become decidedly better, and they are a fairly moral people.

SHUSWAP (LITTLE LAKE) OR KUANT BAND.

Reserves.—The reserves, five in number, of this band are located at the head of Little Shuswap lake and on Salmon Arm. Their total area is 7,840 acres, the larger proportion of which is timbered ; some open country and grazing lands exist around the head of Little lake.

Vital Statistics.—The population is 83. There has been 1 birth and 1 death during the year.

Health and Sanitation.—There has been no contagious disease among them, and their health has been unusually good. Sanitary conditions are good, and the Indians have been vaccinated.

Occupations.—These Indians farm a little, chiefly on land which they have cleared, raise some stock, hunt and fish ; sell wood from land which they are clearing, or hold under permit, and work as labourers in various ways.

Buildings.—They have a good class of log and frame buildings.

Stock.—They have a limited number of suitable horses, and a few cattle.

Farm Implements.—They have a fair supply of farm implements.

Education.—There are no schools among them.

Religion.—They all belong to the Roman Catholic Church ; have one excellent church-building, and are good attendants.

Characteristics and Progress.—These Indians are very industrious and law-abiding. They are making good progress in the clearing of farms for themselves, but they have not the advantages in this respect of many Indians.

Temperance and Morality.—They are a very temperate and moral band.

SIMILKAMEEN, LOWER AND UPPER BANDS (CHUCHUWAYHA, ASHNOLA AND SHENNOSQUANKIN).

Reserves.—The reserves of these bands, numbering seventeen, are located along the Similkameen river, from the boundary line to Princeton. The area of the lower reserves is 19,472 acres ; and that of the upper reserves is 6,438, containing generally good bottom, bench and grazing lands.

Vital Statistics.—The population of the Lower Similkameen band is 133. There have been 5 births and 3 deaths during the year. The population of the Upper Similkameen band is 49. There has been 1 birth and 2 deaths during the year.

Health and Sanitation.—The health of these bands has been good; no epidemic has visited them. They have been vaccinated, and sanitation is good.

Occupations.—These Indians farm and raise stock quite extensively, fish and hunt, freight and pack and work as labourers and cowboys.

Buildings.—They have a moderately fair class of buildings, mostly of logs. Lumber is now coming more into use in the construction of their dwellings.

Stock.—They possess a number of good horses and cattle.

Farm Implements.—They are supplied with all necessary farm implements.

Religion.—They are all Roman Catholics; they have two churches, one at Chuchuwayha, and one at Shennosquankin, and they are religiously inclined.

Characteristics and Progress.—These Indians are industrious and law-abiding; they are making good progress in farming and stock-raising. In the latter occupation, the brothers, William and Paul Terrobaskett, and Ashnola John take the lead.

Temperance and Morality.—They are fairly temperate and moral.

SISKA BAND.

Reserves.—The reserves, seven in number, are located on the Fraser river, a short distance below Lytton. The area is 559 acres, mostly unproductive.

Vital Statistics.—The population is 32; there has been 1 birth and 1 death during the year.

Health and Sanitation.—No epidemic has prevailed. Their houses are small and not well ventilated. They are not much occupied during the warm season.

Occupations.—These Indians produce little from their lands; their chief occupations are fishing and mining.

Buildings.—They have not a good class of buildings.

Stock.—They have not much stock. The horses they have are for riding and packing.

Farm Implements.—They have use for few.

Religion.—They all belong to the Anglican Church, and they attend the church at Lytton, some six miles distant.

Characteristics and Progress.—There are a few able-bodied Indians among them, and they do little more than get a living. They are law-abiding.

Temperance and Morality.—They are temperate and moral.

SKUPPA BAND.

Reserves.—The reserves of this band are on the left bank of the Fraser river, between Lytton and Siska. They have an area of 268 acres, and are capable of producing little.

Vital Statistics.—The population is 17. Other statistics have been included in the Lytton band, with which they are identified.

SPALLUMCHEEN BAND.

Reserves.—The reserves of this band, three in number, are located on the Spallumcheen and Salmon rivers. They contain an area of 679 acres, mostly agricultural and timbered lands. There are some good pasture-lands on Salmon river.

Vital Statistics.—The population is 144. There have been 8 births and 4 deaths during the year.

Health and Sanitation.—No epidemic has visited these Indians, their houses are well kept, and sanitation is good. They have been vaccinated.

Occupations.—These Indians farm extensively, and raise some stock, fish and hunt, and work as labourers in various ways. Their chief means of living is by farming.

Buildings.—They have a good class of houses.

Stock.—They have a good class of horses, suitable for farm work, and a few good cattle.

Farm Implements.—They are well supplied with modern farm implements and machinery.

Education.—They have no schools.

Religion.—They are all Roman Catholics; have a good church-building, and are good-living people.

Characteristics and Progress.—They are a very industrious band, and most of them are comfortably well-off. They have adopted a civilized mode of life to a greater extent than any of the other bands in this agency. They are peaceable and law-abiding, associate and mingle more with the white population, and take an interest in sport and matters generally affecting the community.

Temperance and Morality.—They are exceptionally temperate and moral.

SPUZZUM BAND.

Reserves.--The reserves, numbering six, of this band are on the Fraser river, some distance above Yale. They have an area of 456 acres, containing small patches of tillable land.

Vital Statistics.—The population is 158. There have been 5 births and 7 deaths during the year.

Health and Sanitation.—No epidemic has visited them and generally their health has been good. They have been vaccinated. Their houses are clean, and sanitation is good.

Occupations.—These Indians produce small quantities of hay, fruit and vegetables. Their chief occupations are fishing, mining and working on the railroad.

Buildings.—They have a fair class of dwelling-houses.

Stock.—Their stock consists of a few small horses, for riding and packing, and a few cattle.

Farm Implements.—They have sufficient farm implements for their requirements.

Education.—They have no schools on the reserve. Some have attended the public school established at Spuzzum station, and at All Hallows, Yale. They have made good progress, and are well-behaved and cleanly.

Religion.—They are about equally divided between Roman Catholics and Anglicans : they have two church-buildings, and are a good-living people.

Characteristics and Progress.—These Indians are industrious and law-abiding. Their means of acquiring a living are limited, and progress is consequently slow.

Temperance and Morality.—They are very temperate and moral.

COLDWATER BAND.

Reserves.—The reserves of this band, three in number, are located on the Coldwater river, in the Nicola valley. They have an area of 6,276 acres, containing farming, grazing and timber lands.

Vital Statistics.—The population is 110. There have been 7 births and 7 deaths during the year.

Health and Sanitation.—No epidemic has appeared among them, and the general health has been good. The Indians have been vaccinated, and sanitation about their houses and village is good.

Occupations.—These Indians farm and raise stock, fish and hunt, freight and pack, and work in various ways as labourers.

Buildings.—They have a good class of buildings.

Stock.—They have a number of good horses and cattle.

Farm Implements.—They are well furnished with farm implements.

Education.—They have no schools. Some have attended the Kamloops industrial school.

Religion.—They all belong to the Roman Catholic Church ; have a good church-building, and are a very religious people.

Characteristics and Progress.—They are very industrious, steady and law-abiding Indians. Violation of the law is almost unknown among them. They are making good progress in farming and improvements.

Temperance and Morality.—They are highly temperate and moral.

GENERAL REMARKS.

The Indians throughout this agency are making steady progress in farming and stock-raising. They have as good a class of stock generally as the average settler, and take pride in having a good equipment. The Indian women as a rule are very industrious and assist materially towards the maintenance of the household by gathering and preserving, in season, wild berries, which grow abundantly in all sections; by the manufacture of buckskin, and especially among the Fraser Indians of a very high grade of cedar-root basket, and by working as domestic servants for white settlers.

The industrial school at Kamloops has been kept fully supplied with pupils, and has been conducted very efficiently by the Rev. A. M. Carion, principal, and the various departmental teachers and instructors under him. More particularly would I note the care and attention given to the girls attending this institution. I do not think an institution of this kind could be conducted under better management or kept in better order than this has been.

The St. George's school for Indian boys, opened over a year ago, is an up-to-date institution in every respect, and is well conducted. The attendance during the year has considerably increased.

The Lytton Indian hospital has received and cared for more than the usual number of patients. Indians who have occasion to go to this institution receive the best of skilled treatment and nursing. Dr. Wade, of Kamloops, is the monthly attending physician. The assistant missionary, Mr. Peigh, is a medical student, and renders much assistance to the Indians in districts where the services of a physician are not available ; nor must I omit to mention the unvarying effort of the Venerable Archdeacon Small, for the benefit, comfort and uplifting of the Indians.

I have, &c.,
A. IRWIN,
Indian Agent.

BRITISH COLUMBIA.
KOOTENAY AGENCY,
FORT STEELE, July 20, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Location of Agency.—This agency is situated in the southeast portion of British Columbia, and is bounded by the Rocky mountains on the north and east, by United States territory on the south, and by the Okanagan agency on the west.

There are six reserves in the agency ; in addition, there is a reserve at the Kootenay industrial school, and one at the agency office at Fort Steele.

ST. MARY'S BAND, NO. 1.

Reserve.—The reserve of this band is situated on the right bank of the Kootenay river at the mouth of the St. Mary's river, and has an area of 17,425 acres. Isidore's ranch, south of Fort Steele, contains 680 acres ; Cassimayook's, south of Fort Steele Junction, on the Crow's Nest Pass railway, 160 acres, mostly meadowland ; Bummer's Flat hay reserve contains 190 acres ; the Kootenay industrial school reserve 33 acres ; and the agency office reserve, at Fort Steele, 11½ acres.

Tribe.—The Indians of this band are Kootenays.

Vital Statistics.—The population of the band is 216. There were 7 births and 4 deaths, making an increase of 3 since my last report.

Health and Sanitation.—The health of the Indians has been good, and they have been free from epidemics. The St. Eugene village, where the several bands usually gather to attend the festivals of the Roman Catholic Church, was kept clean and free from refuse, and vaccination was carefully looked after.

Occupations.—The Indians follow farming, stock-raising, packing, trapping, hunting and fishing, and the majority make a good living.

Buildings.—The buildings on the reserve are mostly of logs, some hewn very neatly, and at the St. Eugene village new frame dwellings are yearly taking the place of the unsightly and unsanitary shacks formerly occupied.

Stock.—Of late years these Indians improved their stock a good deal by the introduction of a better class of stallions. They have a fairly large herd of cattle.

Farm Implements.—They are well supplied with farm implements, consisting of ploughs, harrows, wagons, sleighs, mowers and rakes.

Education.—The Kootenay industrial school continues to do excellent work under the care of the Rev. N. Coccola, O.M.I., as principal, with the Sisters of Charity as co-workers. The pupils are taught reading, writing, arithmetic, spelling, geography grammar, history and singing. The boys learn useful trades,—carpentry, shoemaking, farming and the care of stock; the girls, housekeeping, dairying, the use of the sewing-machine, knitting and sewing. When at the village, the parents visit the school regularly and appear to take an interest in the progress made by their children. The principal finds no difficulty in keeping up the attendance, as there are usually a number of applicants seeking admission when a vacancy occurs.

Religion.—The Indians of this band are Roman Catholics, are most attentive to their religious duties. At the village church of St. Eugene there is generally found every Sunday a large and attentive congregation.

Characteristics and Progress.—These Indians are industrious, and they are devoting more attention to their farms and stock.

Temperance and Morality.—They are very temperate, moral and law-abiding.

TOBACCO PLAINS BAND, NO. 2.

Reserve.—The reserve is at the international boundary, adjoining the State of Montana. It has an area of 10,560 acres. It is mostly prairie-land that requires irrigation.

Tribe.—The Indians of this band are Kootenays.

Vital Statistics.—The population of this band is 61. There were no births and 1 death, which makes a decrease of 1 during the year.

Health and Sanitation.—The health of the Indians has been good, there having been very little sickness amongst them. They kept their houses and the village very clean, which in a great measure accounts for there being so few deaths.

Resources and Occupations.—They follow farming and stock-raising. A few trap, hunt and fish.

Buildings.—The dwellings are of logs, and are warm and comfortable. They have barns and sheds for their horses and cattle.

Stock.—They have a fairly good band of horses and cattle, which they are adding to and improving from year to year.

Farm Implements.—They own ploughs, harrows, wagons, mowers and rakes, which they carefully put under cover when not in use.

Religion.—These Indians are Roman Catholics, and are zealous adherents to their religion and attentive to their religious duties. They have a neat frame church in their village, in which services are regularly held.

Characteristics and Progress.—They are good farmers, keep their fences renewed, and look carefully after the irrigation of their crops.

Temperance and Morality.—With the exception of one or two of the younger men, these Indians are very temperate, and are a good moral living people.

LOWER COLUMBIA LAKE BAND, NO. 3.

Reserve.—The reserve is located in the Columbia valley, between Lakes Fairmont and Windermere and the Rocky mountains, and has an area of 8,456 acres. The land slopes towards the lakes, and is easily irrigated, and is well watered by several creeks running through it.

Tribe.—These Indians are Kootenays.

Vital Statistics.—The population is 80. There were 4 births and 2 deaths, making an increase of 2 during the year. The deaths that occurred were from old age.

Health and Sanitation.—There was very little sickness in the band. The sanitary condition of their houses is very good. During the summer months many of them live in tents, which they move frequently, which accounts for their general good health.

Occupations.—They depend chiefly on farming for a livelihood. A few of the older Indians follow trapping and hunting. During the harvest and threshing season a number are employed to assist the white settlers.

Buildings.—Owing to the scarcity of lumber and the price asked for it, the houses are principally of hewn logs, and they are very comfortable and convenient.

Farm Implements.—These Indians are well supplied with ploughs, harrows, mowers, rakes and wagons, which are put away and protected when not in use.

Stock.—They have a nice band of cattle and horses and have several well-bred stallions and bulls amongst their stock.

Religion.—They are Roman Catholics, and are most attentive to their religious duties. They have a nice frame church on the reserve, where services are held regularly every Sunday.

Temperance and Morality.—They are not given to intoxicants and are a moral and law-observing band.

LOWER KOOTENAY BAND, NO. 4.

Reserve.—This reserve is in the West Kootenay district, on the right bank of the Kootenay river, three miles north of the international boundary line, at Port Hill, Idaho. It has an area of 1,831½ acres.

Tribe.—These Indians are Kootenays, and speak the same language as those on the reserves in East Kootenay.

Vital Statistics.—The population is 172, an increase of 4. There were 14 births and 10 deaths.

Health and Sanitation.—During the spring, grippe and pneumonia were prevalent, which proved very fatal, especially amongst the children of the band. There is less consumption than formerly, owing to the location of the new village, which is on a high dry bench, and the better class of houses which have recently been built there.

Occupations.—They do some farming, but their principal industry is stock-raising. They hunt, trap and fish, and during the berry season they visit the different towns around the Kootenay Lake camp and pick berries, which are readily disposed of. In the neighbourhood of Creston, a town a short distance from the reserve, many get employment clearing land. The Kootenay Reclamation Company employs a number cattle-herding and haying.

Buildings.—During the year these Indians put up several new dwellings, a great improvement compared with those they formerly lived in. They have a number of fairly good sheds for their cattle.

Stock.—They have a nice herd of cattle, which they provide well for by putting up hay to feed them during the winter. They have a good local market for all the beef they can raise.

Their ponies are not very valuable, and they are making but little effort to improve them.

Farm Implements.—These consist of a number of mowers and rakes, a few ploughs, wagons and sleighs.

Religion.—They are Roman Catholics and are most devout and attentive to their religion. They have now a nice new church at the village, where they assemble regularly for worship.

Temperance and Morality.—As a rule they are a temperate and moral people,

SHUSWAP OR KINBASKET'S BAND.

Reserve.—This reserve is situated on the right bank of the Columbia river opposite Toby creek, in the Windermere district, and has an area of 2,759 acres.

Tribe.—These Indians are Shuswaps who came from the Shuswap lake country in the Okanagan agency many years ago. They speak the Shuswap language, and many understand English.

Vital Statistics.—The population is 56. There were 2 births and 2 deaths.

Health and Sanitation.—These Indians have enjoyed good health. They have very comfortable dwellings, which are well kept, and they wear suitable clothing for the different seasons, which is the means of preventing chest and lung diseases, which lead to consumption.

Occupations.—Their principal industries are farming, stock-raising, freighting, hauling and packing ore. A few still trap and hunt during the winter and spring.

Buildings.—Their dwellings, barns and sheds are the best in the agency, and compare favourably with those of their white neighbours.

Stock.—They have a good herd of cattle, and they take a great interest in their horses, which they have much improved by the purchase of several good stallions.

Farm Implements.—They have the latest improved farm implements, such as threshers, mowers, rakes, wagons, sleighs, ploughs and harrows, which are put under sheds when not in use.

Religion.—They are Roman Catholics and attend strictly to their religion. At the church on the reserve services are held regularly and are well attended.

Characteristics and Progress.—These Indians continue to keep the lead as the best farmers in the agency. They understand routine cropping, and keep their fences renewed from time to time.

Temperance and Morality.—They are very temperate and lead moral lives.

ARROW LAKE BAND, NO. 6.

Reserve.—The reserve is located on the west side of Arrow lake in the West Kootenay district, and has an area of 255 acres.

Tribe.—These Indians are Shuswaps and have lived and hunted for years along the Columbia. They formerly made Fort Shepherd their camping-ground. They speak the Shuswap and Okanagan languages, and understand English fairly well.

Vital Statistics.—The population of the band is 24. There were no births. Two deaths from consumption occurred during the year.

Health and Sanitation.—With the exception of the two deaths mentioned, these Indians enjoyed good health, and were free from sickness.

Occupations.—They follow hunting, trapping, fishing and berry-picking. They occasionally get work on the steamers that run on the river. Recently they have been given several contracts for clearing and grubbing land, by an Englishman of means, who purchased a farm adjoining the reserve. He expressed himself well satisfied with their work, and they are likely to be employed by him from time to time.

Buildings.—Their dwellings are very comfortable. They have no sheds or stables.

Stock.—They have no stock of any kind.

Farm Implements.—These consist of shovels, rakes and hoes.

Religion.—They are Roman Catholics, and when at Trail, Revelstoke or Nelson, they attend church and strictly observe their religious duties.

Characteristics and Progress.—They are very industrious, and work when they can get anything to do. They only cultivate small gardens.

Temperance and Morality.—They are strictly temperate, and are moral and law-abiding.

GENERAL REMARKS.

The Indians, as a rule, are in a better condition than they have been for many years. They live well, and are clothed better than formerly, and there has been a marked decrease in the deaths from consumption. They are steadily improving, and are depending upon their own efforts to make a living.

The ex-pupils of the Kootenay industrial school have proved a great help to the different bands to which they belong. They are good farmers, and handy with tools, and find plenty of employment among their people.

I cannot close the report without bearing testimony to the support I have had at all times from the Rev. N. Coccola, O.M.I., and his assistants at the St. Eugene's mission, and also to the valued services rendered to the Indians by the medical officer of the agency, Dr. Hugh Watt.

I have, &c.,

R. L. T. GALBRAITH,

Indian Agent.

BRITISH COLUMBIA,
KWAWKEWLTH AGENCY,
ALERT BAY, July 12, 1904.

The Honourable,
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my report on the affairs of this agency for the fiscal year ended June 30, 1904.

Location of Agency.—This agency extends from Cape Mudge on the south, to Smith's inlet on the north; including all the islands between these two points; the mainland from Bute inlet to Smith's inlet; the east side of Vancouver island from the 50th parallel of latitude to Cape Scott, the extreme northwest point of the island.

Reserves.—The total area of the reserves in this agency is 17,052 acres. Although nearly all the reserves are heavily timbered, the soil for the most part is rocky and worthless for agricultural purposes.

Tribe or Nation.—All these Indians belong to and are branches of the Kwawkewlth nation.

Vital Statistics.—The combined population of all the bands in this agency is 1,317 including men, women, and children; showing a decrease of 28 for the past year.

Health and Sanitation.—The health of these Indians during the past year has been very poor. There has been no epidemic of any kind, the principal ailments being pneumonia, bronchitis and consumption. It will be noticed in the statistics that, al-

though there has been quite a large number of births, there has been a still greater number of deaths, resulting in a decrease in population throughout the agency of twenty-eight. Every effort has been made to inculcate habits of cleanliness, and I am pleased to be able to report considerable improvement in that direction during the past year. The water-supply has been carefully looked after, and is now as good as one could wish; the absence of typhoid fever and similar diseases is pretty good evidence that there is little or no sickness resulting from that source. Vaccination has been attended to, but the effects of it on these Indians is so severe that it is most difficult to carry out a thorough system in that direction. The principal cause of so much sickness and the decrease in the population can be largely attributed to the habit of the Indians of congregating in large numbers during the winter months; the insufficient shelter, and, at times, scarcity of food leaves them in the spring, after a long siege, in a more or less debilitated condition. An effort was made last April to break up this practice and get the Indians back to their several homes, but the result was not altogether successful.

Resources and Occupations.—The principal occupation of these Indians is fishing. During the salmon-run they fish for the canneries; the men handle the boats and nets while the women and children work inside the canneries. They also do a little hand-logging, cutting cord-wood, making canoes, and drying halibut and sea-weed, the latter being one of their staple articles of food during the winter months. There is little or nothing done in the way of farming as yet, although the Indians are beginning to plant more garden stuff; being away from their homes during most of the summer precludes the possibility of doing much in this line.

Buildings, Stock and Farm Implements.—Most of the houses of these Indians are nothing more than shacks, being built of split cedar boards. The buildings are very large, and are sometimes occupied by ten or a dozen families. There are several small frame houses in almost every village, and they are, I am pleased to be able to say, increasing in number; it is noticeable that those Indians living in small houses are much more cleanly in their habits. These Indians have no farming implements and very little stock. There are a few pigs, chickens, and ducks, owned by some of the Indians in almost every band; but the Indians of this agency depend almost entirely on hunting, fishing and day-labour for a livelihood.

Education.—There are three day schools in this agency, besides a girls' home and an industrial school for boys. The industrial school is situated at Alert Bay, Cormorant island, on a reserve which has been set apart by the department specially for school purposes, and is under the superintendency of Mr. A. W. Corker, Anglican missionary, who is also school teacher and trade-instructor. This school for some reason did not do as well during the year just closed as formerly, there being less than one-half the number of boys in attendance that there was during the preceding year. Mrs. Corker most efficiently fills the position of matron, the premises being kept scrupulously clean. The Alert Bay Girl's Home is situated within a quarter of a mile from the industrial school, on mission property, and is also under the same superintendent, Mr. A. W. Corker, with Miss L. Humphreys in the capacity of matron. The day school, situated on the Nimkish reserve at Alert Bay, is under the able management of Mrs. E. J. Hall. This school has had a very good attendance during the past year, and, although the attendance has been somewhat irregular, the effects of the teaching are quite manifest. The children from the girls' home attend this school. During the first half of the past year the Quaee day school has been presided over by Miss L. Edwards, Anglican missionary; during the latter half, Mr. D. Wilson has been in charge. Mr. R. J. Walker, Methodist missionary, has, until within the last few months, presided over the Cape Mudge day school. He retired about May 1, and was succeeded by the Rev. Mr. Rendle. There has been anything but a good attendance during the year.

Religion.—There is quite a commodious church at Alert Bay under the care and management of the Rev. Mr. Hall, where quite a few Indians attend divine worship.

Mr. D. Wilson, Anglican school teacher at Quaee, and Mr. K. I. Walker, Methodist teacher at Cape Mudge, regularly conduct divine worship in their respective villages.

Temperance and Morality.—In respect to temperance, it is a pleasure to be able to report a most decided improvement among the Indians. Vigorous action has largely put a stop to the liquor traffic, and it is particularly gratifying to know that the Indians or, at least, quite a number of them, take a strong interest in trying to protect their people from unprincipled white men engaged in this nefarious traffic. The same may be said with regard to morality; owing to the large number of logging camps and licensed saloons scattered throughout the agency and the inefficiency of the police protection, it is almost impossible to keep liquor from them.

Characteristics and Progress.—The Indians of this agency have been quite peaceable and quiet during the past year, except on one occasion, when an attempt was made to break up their potlach at Fort Rupert; otherwise they have been doing very well. As long as the different bands are kept separate and confined to their reserves, there is no trouble; but when they all congregate in one village, as they are in the habit of doing in the winter months, they are rather difficult to manage. It is pleasing, however, to note that the grip of their old heathenish customs is gradually weakening, and that especially among the younger people there seems to be a growing disposition to become more like white men.

General Remarks.—These Indians always have been, and are yet, for that matter, most antagonistic to the white race. The reason is probably because they have come more in contact with the undesirable class of whites than any other of our Indians. However, the effects of education, although very limited as yet, seem to be having an influence on their minds, and will, no doubt, eventually solve the problem of civilizing these Indians. In physique and intelligence these Indians are inferior to none on the coast. The Indians of the Wewaiaikum and Wewaiaikai bands, located in the most southern position in the agency, and who have probably suffered more from the proximity of logging camps and saloons than any others, seem to be the first to attempt reform; and I am pleased to be able to say that during the past year they made most praiseworthy efforts in that direction. Although none of the others have done as well, I look confidently forward to a general advance during the ensuing year.

I have, &c.,

G. W. DEBECK,
Indian Agent.

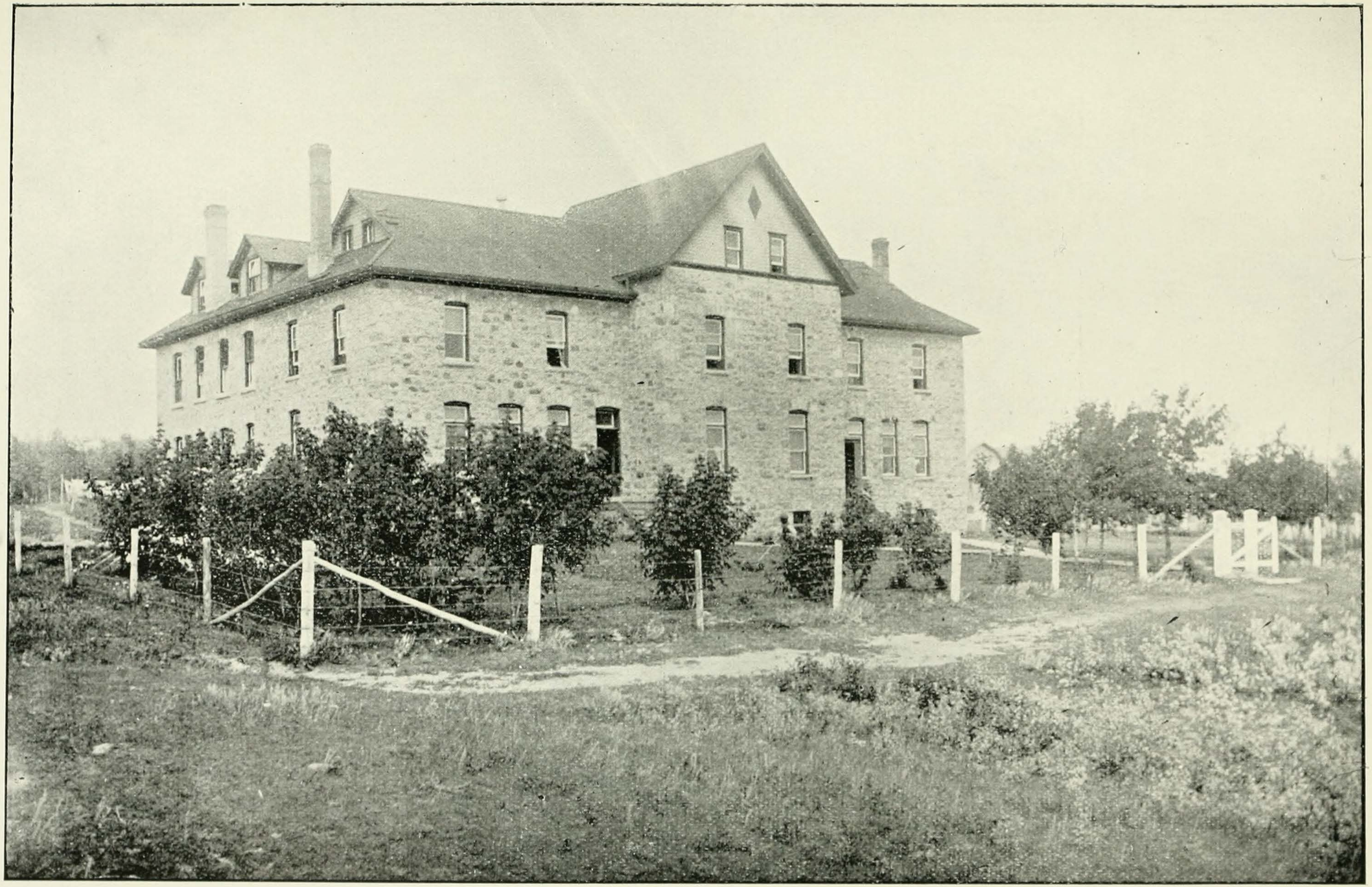
BRITISH COLUMBIA,
NORTHWEST COAST AGENCY,
METLAKATLA, July 25, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report respecting the affairs of this agency for the year ended June 30, 1904.

Location.—This agency extends from the head of Rivers inlet in the south to the head of Nass river in the north, including all the islands and inlets on the coast and extending up the Skeena river as far as the Kitsilas canyon ; it also includes Dolphin island and the Queen Charlotte islands.

The total area of the reserves in this agency is 101,756 acres.



Birtle Boarding School, Man. [257]

SKIDEGATE BAND.

Reserves.—The reserves of this band are situated on the Queen Charlotte islands, and in close proximity to Skidegate inlet and have a total acreage of 1,551 acres. The land generally is rough and unsuitable for agricultural purposes. The greater number of the small reserves are laid off for fishing stations.

Tribe.—These Indians belong to the Haida nation.

Vital Statistics.—The total population of this band is 233, the number of births being 13 and deaths 7, showing a natural increase of 6 during the past year.

Health and Sanitation.—The health of the people in this tribe has been fairly good during the past year, and no epidemic of a serious nature has appeared among them and as usual most of the deaths have been from tuberculosis. During the latter portion of the year a great many of them have been vaccinated and sanitary precautions have been taken at all times, and in general, their houses and surroundings are kept fairly clean.

Occupations.—The principal occupations of these people are fishing, during the spring and summer months, and hunting the rest of the year. They are particularly fortunate in regard to employment, as at present two dog-fish oileries, one of which is owned and controlled by themselves, are in operation, and a halibut saltery has been established by some Nanaimo people this season ; besides this, a great many of the people come to the Skeena river every season for the salmon fisheries; the men readily obtain employment fishing and the women are employed in the canneries filling cans, &c., &c.

Buildings.— Considering that the Indians of this place are obliged to purchase all their lumber from the mainland, and pay heavy freights for carrying it to the island, they are to be commended for the substantial, warm and comfortable houses they have, for, while it is true that abundance of timber is to be found on the Queen Charlotte islands, no mill of any description has so far been built there.

Stock.—These Indians have very few cattle.

Farm Implements.—These people take little or no interest in agricultural pursuits, therefore there is nothing to enumerate under this head.

Education.—On this reserve one Indian day school, under the direction of the Methodist Church, is carried on. I regret to say that the parents in general do not take the interest they should in education and that consequently the teachers encounter more or less discouragement in this branch of the work; however, the children of this reserve are as bright and intelligent as other tribes in this agency, and, speaking generally, they are learning to speak English fairly well, and those that attend school are making fair progress. Like all other day schools, the great drawback to advancement is, that the parents are away so much of the year, hunting and fishing, &c., and that therefore the children do not have a fair chance, many forgetting during the time they are away the greater part of what they had learned, and to a large extent, particularly with the younger children, the work has to be done over again, thereby giving the teacher a great deal of unsatisfactory work.

Religion.—These Indians belong to the Methodist Church and have a good church nicely situated on the Skidegate reserve. At present the pulpit is occupied by the Rev. A. E. Watson, B.A., who acts as minister, doctor, and teacher, at this place.

Characteristics and Progress.—The Skidegate Indians in general may be classed as fairly industrious, and are self-supporting, with the exception of a few old and sick people. They are law-abiding and get along among themselves with but few domestic troubles, which are common to all Indians.

Temperance and Morality.—These Indians are temperate and very little or no trouble has arisen during the past year through immorality, and I am pleased to say marked progress under this head has been made in recent years.

MASSETT BAND.

Reserves.—The reserves of this band are all situated on Graham island, one of the Queen Charlotte group, and have a total acreage of 1,871½ acres. The principal reserve is Massett, at the mouth of Massett inlet, on which the village of Massett stands and where the people of all the reserves reside. The land in general is of a level nature and in many cases well adapted for agriculture. Small reserves are laid off at the mouths of the rivers for fishing purposes. Abundance of choice timber of all kinds is to be found in close proximity to Massett.

Vital Statistics.—The total population of this band is 354, the number of births being 26 and deaths 10, showing a natural increase of 16. This band shows the largest percentage of increase of population in the agency during the fiscal year.

Health and Sanitation.—The health of the people among this tribe has been exceptionally good during the past year, and no epidemic has visited them, outside of grippe, mumps and children's diseases, common to Indians and whites alike, and most of the deaths have been from old age and a case or two of tuberculosis. The natural sanitary conditions are favourable. The Rev. W. E. Collison, the resident clergyman, also gives this important matter his attention and the houses and suroundings are therefore kept clean.

Occupations.—Like the Skidegate people the principal occupations of the Massett Indians consist of hunting and fishing, but they are less fortunate, I regret to say, than their southern neighbours, as no fishing industries of any description have up to the present time been started in the vicinity of their homes, consequently they are obliged to seek employment in other places during the entire fishing season. A number of them go to Southern Alaska, Nass and Skeena rivers for the salmon fisheries. As there are excellent halibut banks in the vicinity of Massett, and good dog-fish fishing grounds, I trust in the near future some enterprising parties may turn their attention to this district, where they will find a people most willing to afford them ample help, and encouragement to start in different enterprises. Besides this the finest quality of timber of all kinds is to be found there, and before long the timber industry will open up on the island, and that will give other employment to these people. Many of these people are also engaged fur-hunting and in the early spring fur-seal and sea-otter hunting. The present year has been a failure as far as seal-hunting is concerned, but some six or seven sea-otters have been taken and, the skins now being worth about $500 each, this has greatly assisted them. Canoe-building, at one time a great industry among these people and from which they derived a large source of income, has gradually decreased, and is now largely a thing of the past, as the Columbia fishing boat, universally used, has taken its place; therefore this source of revenue or income cannot be counted upon in the future. More or less wood, silver, and gold carving, and fancy baskets are made by the older people during the winter months and sold to traders and curio-seekers at fairly good prices.

Buildings.—Many good comfortable buildings are to be found on this reserve.

Stock.—A few of the Indians have taken advantage of the good grass-lands and have quite a few horses and cattle, but up to the present they are of little or no market value.

Farm Implements.—Under this head there is nothing of interest to state.

Education.—Here is to be found one of the largest Indian day schools in the agency under the direction of Rev. W. E. Collison, who is ably assisted by Henry Edenshaw, a native teacher of Massett. The interest taken by the parents in the education of their children is more apparent than in most places and the children are making fair progress. The building used for a school at present is totally inadequate, but application has been made to the department for assistance in this direction this year.

Religion.—The people of Massett all belong to the Church of England and a splendid church stands on this reserve. The Rev. Mr. Collison, a native of British

Columbia, who was born at Metlakatla, is the resident clergyman, physician and teacher. This gentleman is esteemed by his people, as he speaks the Haida, Nishgar, and Tsimpshean languages fluently, and has a thorough knowledge of medicine and understands the Indian traits and characteristics, as only a man born and raised among them can; his work is very successful.

Characteristics and Progress.—These Indians are fairly industrious and are progressing rapidly along the lines of civilization. They are a law-abiding, peaceful people.

Temperance and Morality.—They are in general temperate, and very little trouble is experienced among them from whisky. More or less immorality is to be found among the Massett people, but they are improving greatly in this respect.

KINCOLITH BAND.

Reserves.—The reserves of this band are situated on the lower Nass river, Portland canal, and Observatory inlet, and contain a total acreage of 5,135 acres, combining a limited quantity of agricultural, grazing and timber lands, but largely mountainous and rugged and of little or no use except for hunting. The smaller reserves are laid off principally for fishing purposes.

Tribe.—These people are all of the Nishgar nation.

Vital Statistics.—The total population is 251, and during the year there were 10 births and 10 deaths.

Health and Sanitation.—The health of these Indians during the past year has been good, no epidemic of any kind appearing among them. Sanitary precautions under the direction of the Ven. Archdeacon Collison are well observed; Kincolith compares in this respect favourably with any of the villages in this agency. Their houses and surroundings are kept clean and in cases of sickness the Archdeacon, who is their trusted physician, exercises every care in having destroyed all putrid or offensive matter that would have a tendency to impair the health of others.

Occupations.—The principal occupations of these people are, fishing, hunting and logging. During the cannery season the women are all employed in the several salmon-canneries washing fish, filling cans, &c., &c.

Buildings.—The Indians on this reserve own many fine dwellings, and they are quite modern in appearance and construction, and in many cases well finished both as regards the exterior and the interior, and are warm and comfortable.

Stock.—Under this head nothing can be said, as such a thing as stock is unknown on this reserve.

Farm Implements.—Outside of hoes, rakes, and garden tools, no implements are owned by this band.

Education.—One Indian day school conducted under the direction of the Church of England is situated on this reserve. As in most cases, the parents do not take the interest they should in the education of their children, but a fair average attendance is shown from the quarterly returns, considering that the people are away so much from home. The children of this reserve compare favourably with the children of other reserves in the agency and make as good progress as most of the pupils in other day schools.

Religion.—The members of this band are all Church of England people, and have one of the finest churches on the coast. The interior of the building is finished throughout, a great portion of the work having been done by the Indians themselves, and it certainly is a most creditable edifice. The Ven. Archdeacon Collison, who has been associated with Indian work for over thirty years and who is beloved by his people, and so highly respected on this coast by all classes and creeds, is their pastor, doctor and teacher; having a thorough knowledge of the language, speaking it the same as a native, and having spent his lifetime among the Indians, he has great influence among them for good.

Characteristics and Progress.—The Kincolith Indians are on the whole a fairly industrious people, and, with the exception of a few old, blind or sick, are self-supporting, and are making good progress along the line of civilization. While it is true that they are not accumulating any great amount of wealth, nevertheless they are surrounding themselves with more of the comforts enjoyed by the white man, wearing good warm clothing and using the best of food and to a large extent enjoying many luxuries. Although they have no serious trouble among themselves, their nature is to use any authority vested in them to the limit, and on this account more or less jealousy often exists among them and domestic troubles of a trivial nature cause them unnecessary anxiety.

Temperance and Morality.—Very little drunkenness has occurred among these people during the past year, the principal reason being that special attention has been given to guard closely and shut off any possible sources or means of supply ; if they could easily obtain liquor, I have no doubt there would be more trouble than there has been. Morally this band, with one or two exceptions, stands high, and under this head I must class them among the best in the agency.

LACHKALTSAP BAND.

Reserves.—The principal reserve of this band is the Lachkaltsap reserve, having a total acreage of 3,955 acres, on which the village of Lachkaltsap stands, as well as the villages of Andegulay and Kittex. Besides these large reserves several smaller ones have been set aside for the people of the three villages mentioned, which are used principally for fishing purposes. More or less of this land would be suitable for mixed farming if cleared and cultivated, and some fair-sized timber is to be found on portions of it.

Tribe.—These Indians belong to the Nishgar nation.

Vital Statistics.—The total population of this band is 145, the number of births being 7 and deaths 9, showing a decrease of 2 during the year.

Health and Sanitation.—The health of the people in this tribe has been only fair during the year and some sickness during the spring was reported, particularly among the children. Unfortunately during the past year they have had no clergyman, as the Methodist Church has been unable to obtain a suitable man for this place ; therefore the Indians had no one to advise them and dispense medicines at their villages, but the Ven. Archdeacon Collison, of Kincolith, has always been ready and willing to supply them with anything required when they come to him for treatment. No epidemic of a serious nature has visited them during the year. Necessary sanitary regulations are enforced by the council, and on my visits to the reserve, I found the houses and surroundings fully up to the average.

Occupations.—In common with other Nass Indians, the principal occupation of this band is fishing. During the early spring they are engaged in the oulachon fishing, and extracting the grease from this fish, for which they find a ready market among the traders and the interior Indians. The summer season they spend at the salmon canneries, principally on the Nass river, where the men are engaged fishing, and the women assisting to put the fish up. The rest of the year is spent in hunting and a few are engaged attending to their gardens and they have some very good ones.

Buildings.—The dwelling-houses on this reserve are fully equal to those of any of their civilized neighbours, one or two exceptionally fine dwellings being built on this reserve.

Farm Implements.—Some little farm work is done on a very small scale by a few of these people, but farming is still in its infancy, therefore no farm implements of any account are owned by them.

Stock.—One or two enterprising Indians have started raising cattle on this reserve ; their success may induce others to make a start.

Education.—On this reserve during the past year education has not received much attention, owing to the fact that they have no resident missionary. The Indian day school on the reserve has been kept open, however, during a portion of the year, under the direction of a native teacher.

Religion.—These Indians belong to the Methodist Church, and have a church and manse on the reserve, which were built by the society; but having no resident missionary, they conduct their own services.

Characteristics and Progress.—They are a fairly industrious people and are self-supporting. They are law-abiding, possibly a little over-anxious to exercise the authority vested in them, and at times would like to exceed even that, but on informing them how far their authority goes, I have had no further trouble with them on that score; however like most Indians, they require watching in that respect and at times need a little sharp checking.

Temperance and Morality.—They are a very temperate band and little or no trouble arose through intemperance last year among them. Morally there is no fault to find with them.

ANDEGULAY, KITTEX AND KITWILLUCHSHILT BANDS.

Reserves.—Andegulay and Kittex are both situated on the Lachkaltsap reserve, and Kitwilluchshilt on the reserve of the same name, all being on the Nass.

Besides these reserves they have allotted to them a number of fishing stations. The land in some places or patches is suitable for gardens, but speaking generally of it, outside of the Lachkaltsap reserve, it is not suited to any extent for agriculture, and no timber of any size is to be found except cottonwood.

Tribe.—The Indians on these reserves are all of the Nishgar nation.

Vital Statistics.—The total population of the three small villages and the number of births and deaths during the past year are about equal.

Health and Sanitation.—The health of the Indians during the year has been good. no epidemic of any kind visiting them.

In these villages sanitary conditions are fairly satisfactory, as the buildings are situated close to the edge of the Nass river, and the Indians themselves take more interest in having their homes clean than in former years.

Occupations.—Like all other Nass river Indans, the principal occupations are hunting and fishing, and the cannery managers have always given me to understand that the Indians from these villages are exceptionally good workers and fishermen. During the spring season they are also engaged in the oulachon fishing, and a large amount of grease is prepared for sale by them.

Stock.—No stock of any kind is raised by these Indians.

Education.—No school or teachers are located in the villages of these reserves, and apparently there is no desire by the Indians that there should be, as they are quite satisfied with the old state of affairs as far as education is concerned.

Religion.—These Indians make no profession of any religion. They have no clergyman living with them, neither do they attend services while away from their homes, persistently sticking to their old ideas and customs; nevertheless they are just as honest and honourable as their Christian friends, but lack the advancement and civilization of the Indians that have been taught under the direction and teaching of the missionary and schools.

Characteristics and Progress.—They are industrious and absolutely self-supporting, but during the winter months they at times congregate and hold the old-time festivities. They are law-abiding, harmless people and are ruled over at Andegulay and Kittex by Chief Clather, a very fine old Indian, and at Kitwilluchshilt by Chief We-ha, a man very much respected by his people; but, generally speaking, they are making little or no progress.

Temperance and Morality.—These Indians are reputed to be exceedingly fond of liquor or substitutes made by themselves when they can obtain the necessary ingredients, but I must say that very few cases of drunkenness have been brought to my notice among them, and no trouble of a serious nature. They are a fairly moral people.

AIYANSH BAND.

Reserves.—This band is located on the lower portion of the Kitlacdamax reserve, which has a total area of almost 4,000 acres. Here we find one of the finest reserves in this agency from an agricultural standpoint, the land being level and easily cleared and the soil possessing all the qualities for mixed farming. Besides this they have several small fishing stations that they use for taking salmon for food.

Vital Statistics.—The population of this village I have not yet recevied, but the Rev. Mr. McCullagh informed me recently that they had a good increase from births this year.

Health and Sanitation.—The health of this band during the year has been exceptionally good, no serious illness of any kind being among them. The sanitary arrangements of this village are on modern lines and are as nearly perfect as can be made among Indians. Their houses are well located, all having nice gardens, and the surroundings present a healthy appearance.

Occupations.—In common with other Nass river Indians, the members of this band depend largely on fishing for a livelihood, and every spring take advantage of the oulachon fishing, and during the summer months go to the canneries. During the last few years the Rev. J. B. McCullagh has induced many of them to leave their wives and children at home, to attend to the gardens or small farms which they are slowly but surely getting under cultivation. After they return from the fishing, mostly all of them are engaged clearing up their allotments, and I look for good results from an agricultural standpoint on this reserve in the near future.

Buildings.—On this reserve, through the energy and enterprise of Mr. McCullagh the Indians have a small saw-mill, and on all sides can be seen the wisdom of the outlay, for, removed from the mouth of the Nass river some sixty miles, it would be an expensive and labourious work to get lumber up the river. The dwellings on this reserve compare very favourably with the other villages; they are well built, warm and comfortable.

Stock.—These Indians have quite a few horses, cattle and sheep, and are making a good start along the lines adapted to mixed farming.

Farm Implements.—The Indians of this reserve have some few farm implements.

Education.—On this reserve under the direction of the Church of England, one day school is carried on, which is taught by a native teacher, and superintended by Rev. J. B. McCullagh. The children are bright and intelligent and compare favourably with other Indian day school pupils, but, as in the case of most pupils taught by native teachers, they learn to speak very little English through the medium of the schools.

Religion.—These Indians belong to the Church of England, and on this reserve one of the finest churches in Northern British Columbia has been erected. The Rev. J. B. McCullagh, who hase been pastor, physician and teacher for the last twenty years, ministers to these people, and there is no question of doubt that his work among the Indians from all standpoints has been a marked success. On the opening of the Aiyansh church the sum of $1,389 in cash was taken up at the opening services, every dollar being subscribed by the Indians of this place.

Characteristics and Progress.—The Indians of Aiyansh are among the most industrious in the agency, and no demands for relief have come from them during the year. They are advancing step by step and in many instances have accumulated some money, and, as before stated, have good comfortable homes.

Temperance and Morality.—Little or no intemperance was reported among them during the year, and morally they have an excellent record, all of which is largely due to the strict regulations enforced by the Rev. Mr. McCullagh, J.P.

KITLACDAMAX BAND.

Reserves.—The reserves of this band are all situated at the head of the Nass river, the principal reserve being the northern portion of the Kitlacdamax reserve, a division having been made on this reserve last season between these Indians and the Aiyansh band. Like the Aiyansh portion of this reserve, the land is superior agriculturally to any other reserve in the agency.

Tribe.—These Indians belong to the Nishgar nation.

Vital Statistics.—The total population of this band is 126 souls, 2 births and 3 deaths taking place during the year.

Health and Sanitation.—The health of this band during the past year has been good. The village being situated on high ground close to the river bank, the natural sanitary conditions are favourable, and though these Indians have not yet come under the influence of any religious denomination, they keep their houses clean and the surroundings present a favourable appearance.

Occupations.—Fishing during the spring and summer season and hunting the rest of the year comprise the actual employments of the Kitlacdamax Indians. A few of them have gardens and raise small quantities of potatoes of the finest quality for their own use, but up to the present they have paid very little attention to farming.

Buildings.—Little advancement has been made under this head towards the erection of modern dwellings, but the old style Indian houses substantially built, airy and comfortable apparently satisfy the Kitlacdamax Indians.

Stock.—A few horses and cattle are owned by them.

Farm Implements.—They own no farm implements.

Education.—There are no schools or teachers on this reserve and no desire is expressed by the Indians for them.

Reilgion.—No churches or missionaries are to be found here and the Indians take no interest in religion of any kind, and seldom, if ever, visit the church presided over by Rev. J. B. McCullagh, at Aiyansh, although they respect and fear him, and in many cases come to him for medical treatment and to transact business for them.

Characteristics and Progress.—These Indians, although termed heathens by their Christian neighbours, are a fairly industrious people and are self-supporting, and to my knowledge have never asked for relief. While it is true that they are less progressive than many of the Christian Indians, nevertheless they are above the average heathen Indian. They at times show a disposition to be unfriendly with the Christian Indians, but in some cases, possibly, the over-anxious Indian constable, desirous to exercise his authority, may provoke them. I have found a tendency among some Indian councils to try and carry their authority beyond their own reserves. I have always dealt sharply with intruders.

Temperance and Morality.—Under the heading of temperance, I cannot report as favourably on this band as I should wish, as they have been represented to me as exceedingly fond of liquors, and as the sources of supply have been shut off from them effectively, I am informed they make wine from the native berries and at times indulge very freely in it. I have done my best on my visit to this distant reserve to locate the supply, but without success.

Morally, they are, I consider, very good, as little or no domestic troubles of any kind have been brought before me by them.

PORT SIMPSON BAND.

Reserves.—The principal Indian reserve in this agency from the standpoint of size is the Tsimpsean reserve, which contains a total acreage of 57,742 acres, the

northern half having been laid off for the Port Simpson band. Besides this large reserve, they have had many fishing stations laid off and surveyed for them on the Skeena river and other points. While it is true that these Indians have a large stretch of country, the land in general is unfit for cultivation and contains little or no marketable timber. Portions of it, however, would be suitable for raising cattle, but the long winters would not permit of its being profitably turned to this account.

Tribe.—These Indians belong to the Tsimpsean nation.

Health and Sanitation.—The health of this band during the year has been exceptionally good, and although small-pox suspects on two different occasions were landed within the borders of the reserve, and many of the Indians came in direct contact with it, not a single case developed, largely due to the strict quarantine regulations enforced and the thorough fumigation of all clothing. Many of these people were also vaccinated during the scare.

Occupations.—In common with all Coast Indians, the Tsimpseans depend largely for a living on fishing. During the spring many of them go to the Nass for the oulachon fishing, and about June 1, commence to prepare for the salmon operations on the Skeena. The men are good fishermen and the women earn good wages in the canneries ; consequently they are much sought after and the demand for them is always in excess of the supply. They also to some extent are engaged in logging for the local mills and many of them follow hunting during the winter. Outside of a few gardens these people take no interest in agriculture.

Buildings.—Under this head the band stands pre-eminent among the Indians of this agency, and I believe in the province, having in the vicinity of two hundred modern, substantial, and in numerous cases handsome dwellings. The workmanship on many of the buildings is most creditable.

Stock.—This is an unknown quantity in this band.

Farm Implements.—They have no farm implements.

Education.—This reserve may be termed the home of the schools in this agency under the direction of the Methodist Church, at Port Simpson, for here are the Crosby Girls' boarding school, the Indian Boys' boarding school and a large Indian day school. The work of the Crosby Girls' Home among the Indian girls of this agency is second to none, as under the direction of Miss Paul, the principal, and a capable staff of assistants, this excellent and well-appointed institution is doing a grand work among them, in preparing them and advancing them in all branches of learning and industrial work, more particularly in training and fitting them for the duty of wives and mothers. At the present time forty-five Indian girls are domiciled in this home.

The Port Simpson Indian Boys' boarding school, with some twenty odd pupils, under the direction of Principal Richards, is also situated here and is doing good work among the boys.

The Indian day school is at present under the direction of Miss Stevenson, a most capable teacher. The building now used for this work is not suitable, being very old and not adapted for this work.

Religion.—On this reserve the Methodist denomination has for many years carried on religious work among the people, and has a fine church on the reserve. The Salvation Army also has a large following here and a good building in which services are held. This year religious work has also been started among these Indians by the Seventh Day Adventist society of British Columbia. Besides this the Indians themselves conduct a Church Army, Epworth League, Band of Workers, and other religious services. In connection with the Methodist Church work here it will be in order to state that the Port Simpson Indian hospital, situated close to the reserve, under the direction of W. T. Kergin, Esq., M.D., Medical Superintendent, and a most efficient staff of nurses, is doing a good work among the Indians of the northern portion of this agency. At all seasons of the year Indian invalids can be found receiving treatment at this modern and well-equipped institution.

Characteristics and Progress.--These Indians, as is well known, are among the most enlightened and advanced Indians in the west, and are self-supporting and live in a condition of comfort and independence. They are good workers, and, if they had an opportunity of working the year round, would accumulate property and money ; but the great drawback to them is the short season and the lack of employment after the fishing season ends. With the prospect of a railway coming to this vicinity, I look for many of them to turn their attention to railway work, and they will be found capable and reliable workmen once they become acquainted with the work.

Some few of them own and operate a small salmon cannery on the Skeena river, and another company owns a small saw-mill on Works canal.

Temperance and Morality.—They are a sober people and my impression is would not be addicted to the use of liquor to excess if they had the privilege of obtaining it the same as whites. Morally they are fully equal to any Indians in the agency and have a good record for the past year.

METLAKATLA BAND.

Reserves.—Occupying the southern half of Tsimpsean reserve and situated on Metlakatla bay is the old historic village of Metlakatla, the home of the Metlakatla Indians. This reserve being the southern half of the Tsimpsean reserve including Digby, and Tugwell islands, has an acreage of something over 25,000 acres. The land to a great extent might be called worthless, a great portion of it being of a swampy muskeg nature ; but on the small islands in Venn passage and on Digby island some excellent soil is to be found and on these many good vegetable gardens are located. Some fair-sized timber can also be found in patches on this reserve.

Tribe.—These Indians belong to the Tsimpsean nation.

Health and Sanitation.—The health of this band has been good during the year and no serious sickness, outside of the ordinary children's diseases and one or two cases of tuberculosis, has prevailed here. The sanitary conditions here are equal to if not in advance of those of most Indian villages. The Rev. J. H. Keen and Principal John R. Scott of the Metlakatla industrial school attend to the requirements of the sick from a medical standpoint, with much success. Many of this band have been vaccinated this year.

Occupations.—Fishing forms the principal occupation ; a few of them are engaged logging and working in the mills and most of them have potato gardens. This with the time spent in securing food is about the extent of the work they do. Possibly a little boat-building and carpenter work may be added, but this is carried on to no great extent.

Buildings.—The buildings of the people on this reserve are in most cases modern, warm and comfortable, but in appearance they do not compare with the homes of their Port Simpson friends.

Stock.—No stock is now owned by the Indians on this reserve.

Farm Implements.—Outside of garden tools, no farm implements are owned by them.

Education.—This reserve may well be described as the seat of learning in Northern British Columbia, for the government industrial school for boys and girls is located here, under the direction of Mr. Scott, principal, who has ruled the destinies of this school for a number of years and has laid the foundation of learning for so many Indian youths. Miss Davies, the matron, a lady who gives her services without any pecuniary reward, and several lady assistants. attend to the girls' branch of this institution. They are taught by Miss Jackson at the Indian day school, a most competent teacher. Besides these schools, the White Home for the education of white and half-breed children is located here, and during the school term, from all the schools about 150 children can be seen daily.

Vital Statistics.—The total population is 194. There were during the year 5 births and 6 deaths.

Religion.—True to their first love, the Indians of this band remain faithful to the Church of England. The Rev. J. H. Keen, their pastor, who formerly was associated with Indian religious work at Massett, who has mastered both the Haida and Tsimpsean languages and who has devoted his life to this work, takes a deep interest in the welfare of the Indians.

Characteristics and Progress.—The Indians on this reserve are not as energetic and enterprising a body as many other bands in the agency; being naturally of a contented and happy frame of mind, and many of them being descendants of parents of rank, they do not take to hard work, in many cases, with any degree of friendship. They are making little progress in the way of accumulating weath or improving their property, but there are individual cases of enterprise among them. Two small clam-canning canneries are owned by them and operated during the winter months. They have also two fairly well-stocked stores in this village.

Temperance and Morality.—No trouble of any description has arisen in this band this year through intemperance; morally they are practically without fault.

KITKATLA BAND.

Reserves.—The principal reserve of this band is situated on Dolphin island, surrounded by the waters of Hecate strait and Ogden channel, and with eighteen smaller fishing reserves, makes a total area of 4,640 acres allotted to this band. The land comprising these reserves is suitable only for hunting, and fishing operations at the mouths of the streams. No timber of any size or value is to be found on them.

Vital Statistics.—The total population is 208, the number of births and deaths during the year being equal.

Tribe.—This band belongs to the Tsimpsean nation.

Health and Sanitation.—The health of this band has been fully up to the average, and while there is still room for sanitary improvements, they keep their houses fairly clean.

Occupations.—These Indians may be called hunters, although they follow fishing during the salmon season, and their women are engaged in common with other Indian women working in the canneries during that period. Nevertheless, the principal earnings of the Kitkatla Indians are derived from hunting fur-seal and other animals. A few of them engage in hand-logging at certain seasons.

Buildings.—In this respect the Indians of this band are deserving of credit. They have some very good comfortable houses of modern build and one or two good public buildings.

Stock.—No stock is owned by these people.

Farm Implements.—They have no farm implements.

Education.—One day school, under the direction of the Church of England, is located on this reserve. The parents take little or no interest in education; the principal reason for this is that they are away the greater portion of the year. Therefore the teacher receives many set-backs in trying to teach the children under these circumstances.

Religion.—The Church of England, under the direction of Rev. R. W. Gurd, who acts in the capacity of pastor, physician and teacher to this band, flourishes here, and is the sole religion of these people. A fine church, well appointed, is situated on this reserve.

Characteristics and Progress.—The Indians of this reserve are a very industrious class of people. They are proud and haughty and often desire to exceed the authority granted them. Their disposition is not particularly amiable; while they have advanced in many ways, the Indian nature and traits largely dominate them.

Temperance and Morality.—They are not given to the use of alcohol to any great extent. Morally they are quite up to the average.

PORT ESSINGTON, KITSUMKELUM AND KITSELAS BANDS.

Reserves.—The reserves of these Indians are all situated on the Skeena river. The Port Essington special reserve adjoins the town of Port Essington, and in time may become valuable property, as this point is looked upon as the gateway to the interior of Northern British Columbia. Kitsumkelum reserve is situated up the Skeena river some seventy miles, and at Kitselas canyon is the reserve of the same name. Some good agricultural land as well as timber of fairly good size is to be found on these reserves; more especially is this the case with the Kitselas reserve.

Health and Sanitation.—The health of these bands has been good during the year. Sanitary conditions have not been as satisfactory at Port Essington as I should wish, but during the coming year I purpose forming a council at this place and in this manner will improve existing conditions.

Occupations.—These Indians depend on fishing and hunting, working at the canneries, saw-mills and on river steamboats. Some of them are engaged at hand-logging and other work.

Buildings.—They have very good comfortable dwellings.

Stock.—They have no cattle or horses.

Farm Implements.—They have no farm implements.

Education.—On the Port Essington reserve one of the best Indian day schools in this agency is conducted under the direction of Miss Tranter. The children attending this school remain home the greater portion of the year and the advancement they have made under Miss Tranter's teaching is absolute proof that with a good teacher and good attendance Indian children are capable of learning rapidly and thoroughly.

Religion.—The Methodist Church under Rev. D. Jennings, and the Salvation Army carry on religious work here.

Characteristics and Progress.—The Indians in this band residing at Port Essington are not disposed to be troublesome, and are a fairly liberal-minded lot, and are making slow progress. The Indians of Kitsumkelum and Kitselas are only average, and easily disturbed over their own religious and domestic troubles. They are making slow progress.

HARTLEY BAY AND CHINA HAT BANDS, OR KITKAHTA AND KITASOO BANDS.

Reserves.—The reserves of these bands are situated in the Coast district, and are not adapted for agriculture. Some good timber is scattered over some of them and they are all good hunting-grounds.

Health and Sanitation.—The Indians living in these villages have been healthy, and sanitary arrangements satisfactory. No epidemic or serious illness has been among them during the year.

Buildings.—They have good comfortable modern and well-built dwellings in both villages, mostly of the cottage type, which are well adapted for Indian houses.

Occupations.—The Indians living on these reserves are occupied almost constantly, fishing in season, at other times logging and hunting. All have small gardens, from which they produce potatoes enough for their own use.

Education.—Indian day schools conducted by Rev. George Reid at Hartley Bay, and Rev. George Edgar at China Hat, are kept open a greater portion of the year. The parents take some little interest in the education of their children, and they are making fair progress. These schools, having no government assistance, are at a disadvantage, but under the circumstances are making a good start.

Religion.—The Methodist Church Society has a nice church on each of these reserves and at China Hat the Rev. George Edgar, a native clergyman, resides, acting as teacher, physician and pastor to this band. At Hartley Bay, Rev. George Reid, who has been actively engaged for some years in Indian work, acts in the same capacity.

Characteristics and Progress.—The Indians on these reserves are industrious, and self-supporting. They are a quiet, inoffensive people and are making some progress.

Temperance and Morality.—Little or no trouble is caused by these people through intemperance. Morally they are equal to any of the other Christian Indians.

KITLOPE BAND.

Reserves.—The reserves of this small band are situated on Gardner channel, Coast district, and are of little or no value from an agricultural standpoint. Small quantities of timber are scattered through them, but it has no commercial value.

Vital Statistics.—No births took place during the year in this band and three deaths occurred.

Health and Sanitation.—The health of these Indians has been fair and no epidemic appeared among them. The sanitary conditions do not receive the consideration they should. They are a heathen band and careless in this respect.

Buildings.—Their dwellings are of an inferior class, and are not inviting in their appearance, either from the exterior or interior view.

Religion.—No missionary is stationed here. The Rev. George Raley, of Kitamaat, pays them periodical visits, but they take little interest in religion.

Education.—They have no school.

Characteristics and Progress.—They are inclined to be of an indolent nature and might be termed a happy-go-lucky lot, are fair hunters and are self-supporting. They are making little or no progress.

Temperance and Morality.—These people are fond of intoxicants and have even resorted to the manufacture of a kind of 'hootch.' During the year I seized and destroyed a small still of their own manufacture. Morally they are not to be found very much fault with.

KITIMAAT BAND.

Reserves.—The reserves of this band are all situated in Douglas channel and are the poorest reserves and of smaller dimensions according to the size of the band than any other in the agency. They contain no farming land and no timber of any value.

Health and Sanitation.—The health of this band has been good. Sanitary conditions, however, might be improved. The general appearance of their homes is satisfactory from the outside, but the interior lacks the cleanliness and attention desired.

Buildings.—Many good modern dwellings have been built on this reserve, and the workmanship on some of the newer ones reflects credit on the owners.

Stock.—The Indians of this reserve have no stock.

Occupations.—Although somewhat removed from the principal salmon rivers on this coast, these Indians derive a large part of their incomes from fishing. They are employed every season at the salmon fisheries by the Rivers Inlet canneries. Besides this, they engage in hand-logging for the Port Essington saw-mills, and do considerable hunting during the winter months. They raise a few potatoes for their own use.

Education.—One day school under the direction of the Methodist Church and the superintendence of the Rev. George Raley, is kept open during the greater part of the year. The parents are no exception to other Indians in respect to the interest they take in the education of the children. The pupils are fully equal to the other children in the southern parts of the agency, but like all other day schools, the parents being away so much, it is difficult for the teachers to make a good showing for the amount of

labour spent. On this reserve is located the Kitimaat Indian girls' home, the property of the Methodist Missionary Society, which under the direction of Miss Long, matron, is doing good work among the Indian children of this part of the agency.

Characteristics and Progress.—The Indians of this reserve are fairly industrious, requiring but little assistance except in the case of the old and deformed. They are considered very good workers, and are peaceable and law-abiding. They are of an independent nature and inclined to look upon whites with distrust as regards their dealings with them. They are making some progress and may be counted among the advanced Indians of the coast.

Temperance and Morality.—They are a temperate people, and morally give little trouble.

Religion.—The Methodist Church for many years, under the direction of Rev. George Raley, has successfully battled with the religious problem among this tribe. On this reserve is a fine church finished throughout. Mr. Raley may be mentioned among the men who have given a number of years of their life, for the advancement of Indians on this coast, having suffered many privations and hardships, while he might have enjoyed for himself and family the comforts and pleasures of civilization, being a man of ability and advanced ideas.

BELLA BELLA BAND.

Reserves.—The reserves of this important band are situated in the Coast district and comprise a total acreage of 3,372 acres, the principal reserve being the Bella Bella. The land, generally speaking, is not adapted for agriculture, but the small reserves contain many patches of suitable soil for the production of good vegetables. Some fair-sized timber patches are scattered throughout the reserves, but to no great extent. The small reserves are valuable as fishing stations, and many of them are used for this purpose.

Vital Statistics.—The total population of this reserve is 322, the number of births during the year having been 16, and deaths 21.

Health and Sanitation.—The health of the Indians in this band the past year has been good, and there was not any contagious disease of a serious nature prevalent. Sanitary precautions are always taken by Dr. R. W. Large, and any infringements of the by-laws are dealt with by the council. The premises of these Indians present a respectable and healthy appearance. A number of them have been vaccinated during the year.

Under this head may be mentioned the Bella Bella Rivers Inlet hospital, under the medical direction of Dr. Large and his staff of trained nurses. This institution is pleasantly situated in the centre of the village, facing the bay, with a southern aspect, and is a most modern, well-equipped hospital. Indians from the southern part of this agency, and the Kwawkewlth agency, can at any time of the year be found receiving treatment at this institution.

Occupations.—Fishing, hunting, logging and boat-building are the principal occupations of this band. The spring and early summer is spent in fur-seal hunting, principally at Goose islands and the surrounding waters. During the summer season they are engaged in fishing and assisting in canning work at Rivers Inlet and Namon. In the fall and early winter many of them are engaged logging for the Rivers Inlet mills, and the remainder of the year is taken up in hunting, boat-building, &c., &c.

Buildings.—The buildings of this band, considering that they have only been about three or four years in their new village, are most creditable and will in time compare very favourably with any of the dwellings owned by Indians in the agency. They are modern in construction and appearance, and as they get the interior of them completed, will be warm and comfortable.

Stock and Farm Implements.—They have no stock nor farm implements.

Education.—This band has one day school under the direction of Miss Beatty. The building is a new one, and well suited for this work. The parents take some little interest in the education of their children, but, like all other Indians, do not consider it absolutely necessary for them to be educated. The children are making the average progress of day school pupils.

Religion.—This band are all of the Methodist faith, Dr. Large is their pastor, and they compare very favourably from a religious point of view with any other Christian bands in the agency.

Characteristics and Progress.—This tribe may be classed as industrious. They are law-abiding and fairly intelligent. They are making good progress, have a good wharf on the reserve, at which all the steamers desiring to do so can berth, own a steam saw-mill, for which they paid some $3,000 cash, and are deserving of praise for their energy and perseverance in carrying out anything they undertake.

Temperance and Morality.—They are very little addicted to the use of intoxicants; morally they compare favourably with other bands.

KEMSQUIT, TALOMEY AND BELLA COOLA BANDS.

Reserves.—The Kemsquit reserves are located at the head of Dean channel and contain a total area of 930 acres. The Talomey and Bella Coola reserves are located on the southern, and northern arms, respectively, of Bentic arm, and contain a total area of 4,007 acres. The Kemsquit reserves contain some agricultural land and fair-sized timber, but the soil is not well adapted for farming, being of a gravelly nature. Much good soil is distributed through the Talomey reserves, and some excellent timber. The Bella Coola reserve is beyond doubt the most valuable reserve, according to its acreage in this agency. The finest soil, and excellent timber, with good tidal flats, producing excellent grass, describes as nearly as possible the natural features of this reserve.

Tribe.—These bands are all of the Talomey tribe.

Vital Statistics.—The population of the Kemsquit band is 69 ; no births and 1 death occurred during the year.

The population of Talomey is 26, 1 birth and no deaths taking place during the year.

The population of Bella Colla is 198, with 5 births and 10 deaths taking place.

Health and Sanitation.—The health of these bands has been fair, no epidemics or serious outbreaks taking place during the year. Sanitary arrangements are far from being astisfactory. Although Dr. Spencer, who acts as medical missionary, does all he can to instruct and advise them with regard to the necessity of keeping their houses and surroundings clean, still they cling to their old habits and customs and appear to have no desire to get rid of filth. Fortunately, however, the old village is built close to the river bank, and the rise and fall of the river greatly assists to remove garbage, &c., &c.

Occupations.—These tribes are all engaged during the summer season, fishing at the salmon canneries and also do considerable logging for local mills. They all have potato gardens and raise, besides what they require for their own use, a few potatoes for sale, but hundreds of acres of the finest land remains untouched. The Bella Coola Indians, however, in a few individual cases, are being brought to realize the value of their reserve, and more interest in manifested. They do considerable hunting in the winter season.

Buildings.—At Kemsquit there are individual cases of improvement in this line, but the majority of them are content with the old Indian home.

At Talomey and Bella Coola the same remark would apply ; Bella Coola possibly showing a little advancement.

Stock.—They have some cattle and horses at Bella Coola.

Farm Implements.—Very few farm implements are owned by them.

Religion.—At Talomey and Kemsquit they have no missionary or churches and show no desire to accept any religion. At Bella Coola, Rev. Dr. Spencer is meeting

with a small degree of success, but these tribes are exceedingly slow in their desire to change or forget their old ideas and customs, and it certainly is discouraging work to the missionary to labour with them, but if perseverance and pluck will accomplish the object in view, Dr. Spencer will yet be successful in bringing them to realize that it is in their interest to adopt and accept religious teaching.

Characteristics and Progress.—I can class these Indians as neither industrious nor indolent. They are law-abiding, peaceable and friendly towards the whites, and have some good qualities, they are generous and lack to a large extent jealousy among themselves, which is so common to Indians elsewhere. They are making little progress, but are self-supporting.

Temperance and Morality.—They are exceedingly fond of liquor, and they give much trouble through the manufacture and use of wines made from the native berries. Morally the standard is not high.

OWEEKANO BAND.

Reserves.—The reserves of this band are located at the head of Rivers' inlet and contain a total acreage of 1,761 acres. The land, with the exception of a few patches, may be classed as worthless, except for hunting and fishing purposes.

Tribes.—This band belongs to the Oweekano tribe.

Health and Sanitation.—They are a fairly healthy people. Sanitary conditions prevailing among them are not as they should be, and no matter what pressure is brought to bear on them, they take little or no interest in this matter.

Occupations.—Fishing, hunting, and occasionally a little logging are their principal employments.

Buildings.—Their buildings are mostly all of the old Indian style, which may be considered a good thing for them, as this tribe has shown no improvement in other directions, and the old style house is roomy and admits of pure air in all directions.

Stock and Farm Implements.—They have no stock nor farm implements.

Education.—They have had no school, but at the present time the Methodist Missionary Society contemplates again trying to do something for them.

Religion.—Rev. Mr. Bromwick, formerly of Skidegate, has within the last two months started religious work among them.

Characteristics and Progress.—They are indolent and, I am informed, are poor workers, and yet are self-supporting and make a good living. They make no attempt at advancement, being apparently contented to remain Indians in every sense of the word.

Temperance and Morality.—They are fond of liquor and at every possible chance obtain it. They have given some trouble through the manufacture of a kind of 'hootch' which intoxicates them.

GENERAL REMARKS.

During the year we had the pleasure of an official visit from Mr. A. W. Vowell, Indian Superintendent for the province, and Mr. Ashdown H. Green, Surveyor, who in company with myself attended to survey work on the Nass and Skeena rivers.

Dr. T. A. Wilson, of Port Essington, is kept busy with medical work among the Skeena river Indians, and during the fishing season with Indians from other parts of the coast coming to him for treatment.

The year just closed has not been an exceedingly prosperous one for the Indians generally. Salmon fishing on the northern rivers has on the whole been below the average. The decline in the price of furs this year has also been a serious drawback to them. Nevertheless, I am pleased to report that comparatively little relief was required throughout the agency.

I have, &c.,

GEO. W. MORROW,

Indian Agent.

BRITISH COLUMBIA,
WEST COAST AGENCY,
ALBERNI, July 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on the affairs of this agency, for the year ended June 30, 1904, as follows :—

Location of the Agency.—This agency extends from Otter point to Cape Cook, a distance of two hundred miles along the west coast of Vancouver island.

Tribe or Nation.—The Indians of this agency belong to the Aht nation, and consist of eighteen tribes.

Reserves.—The eighteen tribes have one hundred and fifty reserves and fishing stations, aggregating 12,390 acres, or about five acres per head of population. There are two large reserves in Barclay sound; one at Alberni, belonging to the Tsesaht tribe, containing 1,030 acres ; and the other at Numukamis Sarita valley, belonging to the Ohiat tribe, containing 1,700 acres. The acreage of the other reserves ranges from two acres to 250 acres each ; the majority of these reserves are rocky, timbered, or tidal lands given for village sites and fishing stations, with only patches of land suitable for cultivation.

TSESAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Tsahaheh (No. 1) and is situated on the west bank of the Somas river at Alberni, and comprises an area of 1,030 acres. The total area of all their reserves is 1,458 acres.

OPITCHESAHT BAND.

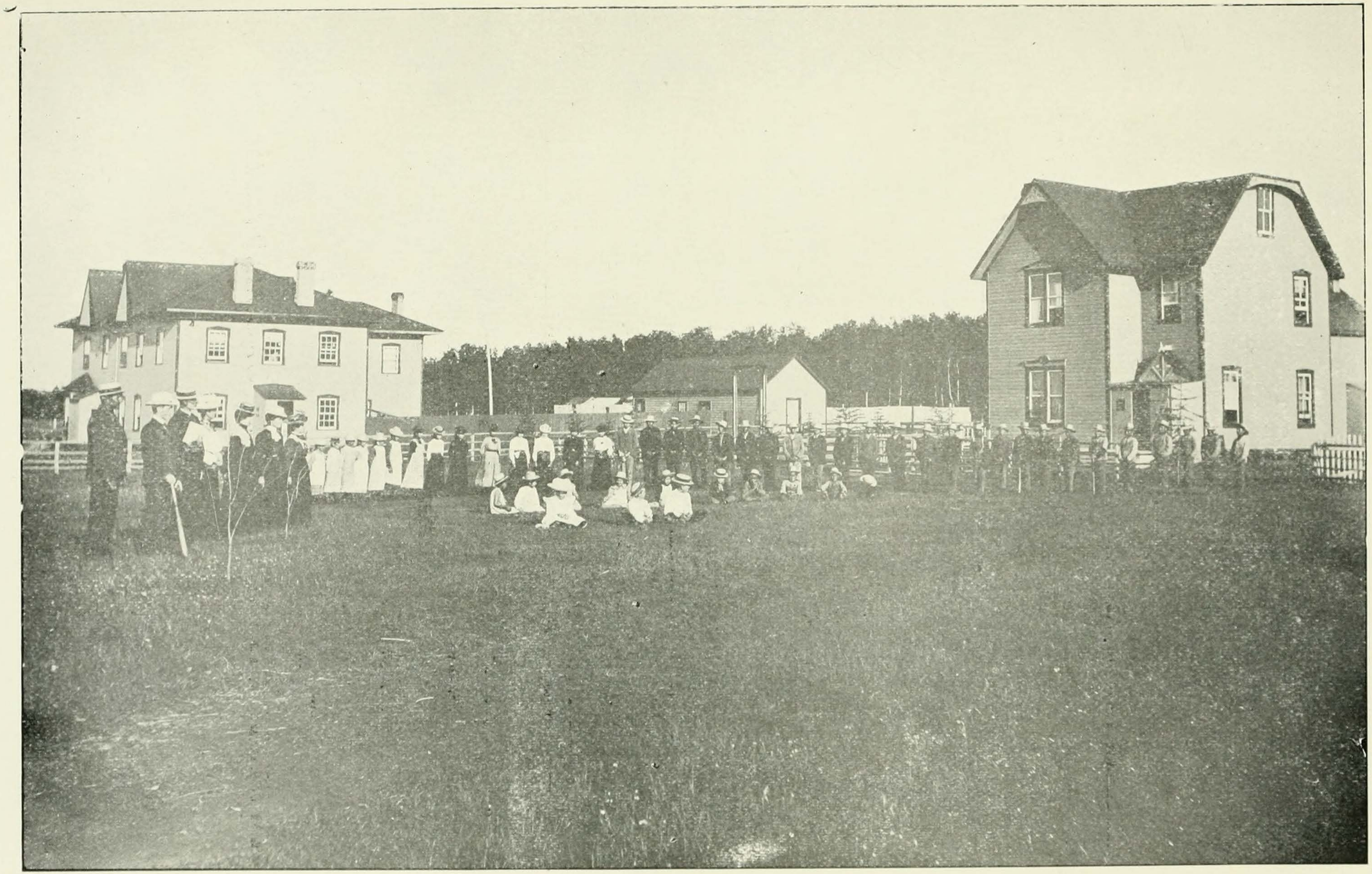
Reserves.—The principal reserve of this band, and where the Indians reside, is named Ahahswinnis (No. 1), and is situated on the east bank of the Somas river, at Alberni, and comprises an area of 96 acres. The total area of all their reserves is 422 acres.

HOWCHUKLISAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Elhlateese (No. 3) and is situated at the head of Howchuklisaht harbour, Alberni canal, and comprises an area of 400 acres. The total area of all their reserves is 575 acres.

OHIAT BAND.

Reserves.—The principal reserves of this band, and where the Indians reside, are Ahadzooas (No. 7) and Haines island (No. 8) and are situated at the eastern entrance of Barclay sound, and comprise an area of 145 acres. The total area of all their reserves is 2,671 acres.



EMMANUEL COLLEGE, PRINCE ALBERT, SASK. [273]

TOQUAHT BAND.

Reserve.—The principal reserve of this band, and where the Indians reside, is named Mahcoah (No. 1) and is situated at Village passage, Barclay sound, and comprises an area of 124 acres. The total area of all their reserves is 421 acres.

EWLHUILHLAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Ittatso (No. 1) situated on Ucluelet arm, Barclay sound, and comprises an area of 180 acres. The total area of all their reserves is 649 acres.

CLAYOQUOT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Opitsat (No. 1) is situated on Clayoquot sound and comprises an area of 180 acres. The total area of all their reserves is 540 acres.

KELSEMAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Yahksis (No. 11) and is situated on Flores island, Clayoquot sound, and comprises an area of 180 acres. The total area of all their reserves is 223 acres.

AHOUSAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Mahktosis (No. 15) and is situated at Matilda creek, Clayoquot sound, and comprises 250 acres. The total area of all their reserves is 826 acres.

HESHQUIAT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Heshque (No. 1) and is situated at Heshquiaht harbour about twenty miles north of Clayoquot sound, and comprises an area of 222 acres. The total area of all their reserves is 577 acres.

MOACHAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Yuquot (No. 1) and is situated at Friendly cove, Nootka sound, and comprises an area of 210 acres. The total area of all their reserves is 527 acres.

MATCHITLAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Cheshish (No. 15) and is situated in the rear of Bligh island, Nootka sound, and comprises an area of 29 acres. The total area of all their reserves is 127 acres.

NOOCHAHTLAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Noochatl, (No. 1), and is situated on Esperanza inlet, and comprises an area of sixteen acres. The total area of all their reserves is 188 acres.

EHATTISAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Oke, (No. 10), and is situated on Esperanza inlet and comprises an area of 32 acres. The total area of all their reserves is 123 acres.

KYUKAHT BAND.

Reserves.—The principal reserves of this band, and where the Indians reside, are named, Aktese (No. 1), Village island, and Kukamukamees (No. 2), Mission island, comprising an area of 193 acres. These islands are part of the Barrier Island group. The total area of all their reserves is 611 acres.

CHAICCLESAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Acous, (No. 1), and is situated in Battle bay, Ououkinsh inlet, and comprises an area of 100 acres. The total area of all their reserves is 258 acres.

NITINAHT BAND.

Reserves.—The principal reserves of this band, and where the Indians reside, are named Tsooquanah (No. 2), Wyah (No. 3) Clo-oose (No. 4), and Carmanah (No. 6), all of which are situated at the entrance of the straits of Juan de Fuca and comprise an area of 773 acres. The total area of all their reserves is 1,790 acres.

PACHEENAHT BAND.

Reserves.—The principal reserve of this band, and where the Indians reside, is named Pacheena (No. 1), and is situated at the mouth of the San Juan river, at Port Renfrew, and comprises an area of 153 acres. The total area of all their reserves is 404 acres.

REMARKS APPLYING TO FOREGOING BANDS.

Vital Statistics.—The population of the various bands hereinbefore enumerated is as follows : Tseshaht, 130 ; Opitchesaht, 59 ; Howchuklisaht, 38 ; Oiaht, 149 ; Toquaht, 26 ; Ewlhuilhlaht, 150 ; Clayoquot, 241 ; Kelsemaht, 76 ; Ahoussaht, 262 ; Heshquiaht, 150 ; Mooachaht, 172 ; Matchitlaht, 66 ; Noochahtlaht, 62 ; Ehattisaht, 95 ; Kyukaht, 281 ; Chaicclesaht, 86 ; Nitinaht, 202 ; Pacheenaht, 58 ; being a total of 2,303, made up as follows : 770 men, and 823 women, over the age of fifteen years, and 366 boys, and 344 girls, under the age of fifteen years.

Health and Sanitation.—During the past year, while there has been no outbreak of any infectious or contagious disease, yet there have been a large number of deaths and the vital statistics show a decrease in the total population of eighty-four. There were a few accidental deaths; two were drowned near shore, two men were lost from a sealing schooner, and one man got lost in the woods and perished from cold and exposure. A number of the deaths were those of old people, but the majority of the deaths must be ascribed to the ravages of consumption and scrofula, two diseases to which these Indians are very susceptible. Considerable attention has been paid during the year to the water-supply of the different villages, with, I am pleased to state, satisfactory results.

At Clayoquot on the Opitsat reserve the department supplied a quantity of galvanized iron piping, which was used to tap a small stream behind the village and bring into the centre of the village a constant supply of pure water.

At first the idea was regarded with apathy, and in a few cases with hostility, by the Indians, but once the system was installed they soon recognized the benefit and

are now glad to avail themselves of it. A practical demonstration of this kind, accompanied with some help to carry it out, is of much value in instilling into their minds a better idea of sanitary principles. Assistance along the same line has also been furnished to two other bands with good results.

Resources and Occupations.—The principal means by which these Indians derive a livelihood are sealing, salmon-fishing for the canneries, and, on a small scale, hunting small wild animals, such as black bear, land otter, and mink, for their fur. A few get a little work as packers or guides for prospectors, sportsmen and timber cruisers. Still fewer add to their living by doing a little farming, but in most instances the rough and barren, or heavily timbered character of their reserves forbids much being done in that way. The women work in the canneries, cleaning the salmon, and preparing them for canning. They also earn a little money by making mats and baskets out of the inner bark of the cedar-tree, which they sell, as curios, to tourists and others.

The sealing industry, from which so large a part of the total revenue of these Indians is derived, is not in a very prosperous condition. Formerly it afforded very lucrative employment to the Indians who engaged in it. For example, in 1900 the revenue from this source alone, over the whole agency, was, in round figures, $150,000, while now, it is only about one-third of that sum. This decline is due principally to the scarcity of seals, resulting in small catches, and to a fall in the price of seal-skins which prevents the owers of the schooners offering as much per skin to the Indian hunters as formerly.

The cannery started last year at Uchucklisaht has been of much benefit to the Indians of Barclay sound, affording them good remunerative employment in the vicinity of their homes, instead of having to travel to the mainland or elsewhere in search of work. Those who went to the Fraser river fishing last summer did very badly, the price per fish not being large and the run smaller than was anticipated.

Buildings.—Although the buying power of these Indians has decreased of late years, yet rather more new buildings have been erected during the past year than usual. This is due, in a large measure, to the fact that during last winter several ships laden with lumber were wrecked on this coast, and, as it seldom pays the owners or underwriters to endeavour to recover the cargo, the Indians were enabled to pick up considerable quantities of lumber, which was, or will be, used in the erection of new dwelling-houses. In building, nowadays, the Indians have, I may say, almost entirely adopted the white man's style of a frame building, and generally prefer it to be of reasonably small dimensions, eschewing the old-fashioned edifice, capable of accommodating an entire band.

Stock and Farm Implements.—The two bands resident at Alberni possess a few horses and own two or three buggies. They also have a plough and a set of harrows, but do very little farming. Only one other band possesses any stock to speak of, and they do not have any farm implements, but sometimes cut a few tons of natural hay for their cattle in case of severe storm, letting them run in the bush for the rest of the year, which tends to make them wild. For the most part the reserves are not suitable for encouraging the Indians to essay farming, being more or less heavily timbered and not first-class land when expensively cleared.

Education.—There are, in this agency, one industrial, two boarding, and four day schools, receiving aid from the department.

Industrial School.—This is situated at Clayoquot, on Meares island, and is conducted under Roman Catholic auspices by the Rev. Father Maurus, O.S.B., ably assisted by Sister Placide and a competent staff. This school has only been conducted for one year as an industrial school and for three years previously as a boarding school, and the success achieved in that time is highly creditable to all concerned. The management, discipline, and the behaviour of the pupils leave but little to be desired. The pupils have made great progress in their studies, in which they take much interest, and seem to be happy and contented. The girls, under the direction of a seamstress, have learned to cut out, make and mend all the clothes required by either themselves

cr the boys. This practical instruction must be of the greatest possible benefit when these children return to their own homes. This summer the management has added two wings, now nearly completed, to the building; each wing measuring, according to the plans, which the principal kindly placed at my disposal, 32 x 46 feet, with a basement with concrete walls and floor. When completed the whole will form a most imposing edifice, the largest of its class on the west coast. The grant from the department provides for fifty pupils, but more are kept in the school, there having been fifty-eight actually present on the occasion of my last visit.

Boarding Schools.—These are situated at Alberni and at Ahoussaht. That at Alberni is under the charge of Mr. J. R. Motion, principal; Mrs. Motion, matron, and Mrs. Cameron, teacher. During the year an addition of some size has been added to the building, giving increased accommodation. Much of the work on the new building and about the garden and orchard was performed by the older boys. The teaching is carried on along the lines laid down by the department, and, in addition, the pupils receive careful instruction in religious knowledge. Both this school and that of Ahoussaht, are under the control of the Presbyterian Church.

The boarding school at Ahoussaht has only been recognized by the department as such for the last year, but had been conducted, in an informal manner, as a boarding school for some months previously by the management.

The staff consists of : Mr. J. C. Butchart, B.A., principal; Mrs. Butchart, matron, and Miss J. McNeill, assistant teacher. The present principal and matron took charge in October last, and since then, I am glad to be able to state, I have observed a marked improvement in the pupils both in the knowledge displayed in school and in the discipline both in school and boarding-house.

During the year the Church, aided by a grant from the department, has erected a large building to serve as school and boarding-house. The plans, which were submitted to the department for approval, provide for a commodious and handsome building, and the work has been faithfully carried out. It is situated on a fine site facing the water, close to, but not on, the Marktosis reserve, on one hundred and sixty acres purchased for the purpose.

The grant from the department to these two boarding schools provides for thirty at the Alberni, and for twenty-five at the Ahoussaht school, but more pupils are kept than are paid for by the department, there being thirty-six present on my last visit to the Alberni school.

Day Schools.—The four day schools are located as follows :—One at Cla-oose, conducted by the Rev. W. J. Stone of the Methodist Church, one at Ucluelet taught by Miss E. McKay, a Presbyterian; one at Clayoquot under the charge of Rev. Father Moser, and one at Kyuquot conducted by Rev. Father Sobry, the two latter being Roman Catholics. All are doing their best in their respective spheres, but all are somewhat handicapped by the nomadic habits of the Indians, which cause an irregular attendance at times. In this respect the school at Ucluelet shows up well, the average attendance being generally a high percentage of the number of pupils on the roll. In my last visit to this school I was well pleased with the progress made by the pupils since my previous visit, and consider that the teacher, who has not been a year there yet, is doing good work.

As regards the interest taken by the Indian parents in the education of their children, it varies very much. Except a few of the older people, most of the Indians would like to see their children obtain the advantage of an education, but many feelings operate to prevent this. Many of them object to the separation involved by sending them to a boarding school, others would send them for a certain period, say five years, but think it too long to part with them until they are eighteen years of age ; others again would send them to a day school willingly enough, but strongly object to a boarding school.

Religion.—Those Indians that can be classed as adhering to any particular form of religious belief are divided among the Methodists, Presbyterians and Roman Catholics, the last named predominating. Among the many remaining, classed as pagan, are probably some who might be more properly described under the heading of 'no religion,' having from the instruction of the priests and missionaries lost faith in their own old superstitions, but yet hardly sufficiently advanced to embrace any other creed in its entirety.

Rev. Mr. Stone at Nitinat, Mr. Swartout in Barclay sound, Father Moser at Clayoquot, Father Brabant at Hesquiat, and Father Sobry at Kyuquot, are all, each according to his own creed, faithful and earnest labourers in the work of imparting Christianity to the Indians of this coast. And here I may be permitted to express my hearty appreciation of the kindness and courtesy shown me by the teachers and missionaries during the past year, the first of my occupancy of the position of agent: almost without exception they have shown a readiness to make their own dignity and importance subordinate to the furtherance of the cause they have at heart and a cheerful alacrity to co-operate with me in any work for the benefit of our common charges.

Characteristics and Progress.—The Indians of this agency are of a quiet and peaceable character and crime is unfrequent among them. In a scattered community of the same number of white people there is no doubt there would be far more crime in the course of a year. Really serious crime has not occurred during the past year. Their greatest temptations are towards drinking and gambling, and, when under the influence of the former, they are very apt to become violent. Many of them, who would not voluntarily seek to obtain whisky, seem unable to resist the temptation of drinking it when brought within their reach. The cases of drunkenness during the past year show, however, a decrease from previous years and it is to be hoped that this improvement may be permanent.

The Indians of this agency are all practically wage-earners in some way or other and their prosperity from year to year is to a great extent governed by causes over which they have no control. A poor run of fish on the Fraser, a surplus of labour in the hop-fields, or a small catch of seals in the Behring sea, will all operate to produce distress among some portion of the various bands.

As to their morality, considering their traditions and habits, most of the bands can be called fairly moral and would compare favourably with their white neighbours; in one or two bands where they are more exposed to temptation, there is a certain amount of immorality.

On the whole these Indians are making progress towards civilization; contact with white men and observation of their methods induces a desire to imitate them and emulation among themselves also helps. It is quite common to see good sewing-machines in the more advanced women's houses; bicycles also can be seen, and one enterprising Indian is the possessor of a typewriting-machine, which he can use.

General Remarks.—At the close of the first year of my occupancy of the position of agent and after becoming acquainted with all parts and peoples of this extensive agency, it affords me pleasure to record my experience of the work of the late agent, Mr. H. Guillod. Throughout the agency I everywhere found evidences of his faithful work, and his good judgment and tactful kindness, and all classes, both of the white people with whom he came in contact, and of the Indians, united in expressing the respect and esteem in which they held him.

It is my sad story to record the death, under most melancholy circumstances, of the Rev. M. Swartout, which took place on July 11. On that date he left Howchuklisat, intending to proceed to his home at Ucluelet, and was never seen again. Pieces of his boat were afterwards picked up by some of the search party which went out to look for him. At the time, he was alone in his sailing boat, in which he had great confidence and in the management of which he was an expert. It is supposed that he encountered one of the sudden and unexpected squalls for which this coast is notorious, and was either killed outright or swam until exhausted ; what actually happen-

ed will never be known, but it is only too certain that he is another victim to the treacherous waters of this coast. It was only a few months ago that a Roman Catholic bishop and friend were capsized in the canal, not very far from where this last accident occurred, and were only rescued from certain death by the chance arrival of another boat. It is indeed true that they take their lives into their hands who travel by small boats or canoes on the west coast of this island, which is known even among shipping men as 'the graveyard of the Pacific.'

The Rev. Mr. Swartout had charge of the whole of Barkley sound and acted as preacher, counsellor and friend to the Ucluelet, Ohiat and Howchuklisaht bands. After spending ten years in such work, he had acquired a good knowledge of the Aht tongue and could converse or preach to them in their own language. An untiring worker, no labour was too arduous, no sacrifice too great in the carrying on of his Master's work. He will be greatly missed by the Indians, whose entire confidence he possessed. Had he been willing to accept it, he could have obtained preferment in the Presbyterian Church, of which body he was an ordained minister, but he elected to remain among the people he knew and loved, and he died as he had lived, a true servant of his God and in the service of the poor people to whose cause he had devoted his life.

I have, &c.,

ALAN W. NEIL,

Indian Agent.

BRITISH COLUMBIA,

WILLIAMS LAKE AGENCY,

CLINTON, September 5, 1904.

The Honourable

The Superintendent General of Indian Affairs.

Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904, together with a tabulated statement of statistics and a list of government property in my charge.

Location.—The Williams Lake agency is situated north and partly west of the Kamloops Okanagan agency, south of the Babine agency, having the Rocky mountains as a portion of its eastern boundary, and the Fraser agency for its western boundary.

This agency contains an aggregate of 90,080 acres.

Tribe.—These Indians belong to the Salish and Tinneh peoples. The younger portion of the population speak the English language fairly well.

Vital Statistics.—The population consists of 542 men, 507 women and 909 young people under twenty-one years of age, making a total of 1,958, a decrease during the year of 45, there being 71 births and 116 deaths to record.

ALEXANDRIA BAND.

Reserve.—The reserve of this band is situated on both sides of the Fraser river about four hundred miles from its mouth. It contains an area of 1,858½ acres. Its natural features are good grazing bench-lands, all requiring irrigation when cultivated. There are also excellent hay meadows on the reserve.

Vital Statistics.—This band has a population of 54, being a decrease of 9 during the year, there having been 2 births and 11 deaths.

Health and Sanitation.—With the exception of an epidemic of whooping-cough amongst this band, the health of the Indians was good. They have very comfortable houses, which are kept in good condition.

Resources and Occupations.—The chief occupations of these Indians are farming, hunting fur-bearing animals, and working as farm-hands with white settlers. The women also earn considerable from the sale of gloves, moccasins and other articles, which they make up from the tanned deer-skins.

Buildings, Stock and Farm Implements.—They have very good dwellings and horse stables. They have good horses, some cattle, and are well supplied with farm implements.

Education.—A few of the children of this band have attended the Williams Lake industrial school, the rest have received no education.

Religion.—They are all Roman Catholics. They have a small church on the reserve, and they take a great interest in religion.

Characteristics and Progress.—These Indians are law-abiding and industrious and are steadily improving.

Temperance and Morality.—With the exception of one or two who are given to the use of intoxicants, they are moral and temperate.

ALKALI LAKE BAND.

Reserve.—The reserve of this band is situated on a bench a few miles east of the Fraser river, and about three hundred and twenty miles from its mouth. It contains 8,347½ acres. There is excellent land for farming on this reserve, but unfortunately the water-supply for irrigation is not available, and only a small portion is cultivated. A good portion is under fence and is used for pasture. There are also good hay meadows on this reserve, from which large quantities of hay are cut yearly. The natural features are bench-lands, excellent hay meadows and fair timber.

Vital Statistics.—The population of this band is 162, an increase of 3 during the year, there having been 9 births and 6 deaths.

Health and Sanitation.—Most of the deaths at this reserve were from whooping-cough; otherwise the health of this band was good. Their dwellings and surroundings are kept in good order.

Occupations.—A number of the men find employment with white settlers as farm-hands and cattle-drovers, and the women are kept busy making gloves, moccasins and other articles from deer-skins, and during fruit season they gather and sell large quantities of wild berries, besides putting up some for their own consumption.

Buildings, Stock and Farm Implements.—They have good dwellings and good horse-stables. They have good horses, cattle and pigs, and are well supplied with farm implements of all kinds.

Education.—Quite a number of children from this band are being educated at the Williams Lake industrial school.

Religion.—They are all Roman Catholics. They have a good church on the reserve and take a great deal of interest in religion.

Characteristics and Progress.—They are excellent workers, industrious and law-abiding, and are steadily improving.

Temperance and Morality.—They are temperate and moral.

ANAHAM BAND.

Reserve.—The reserve of this band is situated in a valley near the Chilcoten river and about fifty miles from its mouth. It has an area of 9,922 acres. The natural features are open bench-lands, excellent hay meadows, and fair timber.

Vital Statistics.—The population of this band is 223, there having been 10 births and 10 deaths during the year.

Health and Sanitation.—Most of the deaths at this reserve resulted from whooping-cough; otherwise the health of this band was good.

Occupations.—These Indians farm a good deal, have good teams and wagons, and do a great deal of freighting for merchants from the nearest railway station, a distance of two hundred miles. They also earn considerable as cowboys in the employ of cattle-drovers, being expert riders.

Buildings, Stock and Farm Implements.—They have good dwellings and horse-stables, good horses, cattle and pigs. They are well supplied with farm implements of all kinds.

Education.—None of the children of this band have received any education.

Religion.—They are all Roman Catholics. They have a small church on the reserve, where a missionary holds occasional services.

Characteristics and Progress.—They are good workers and are steadily improving their reserve.

Temperance and Morality.—They are temperate and moral.

ANDERSON LAKE BAND.

Reserve.—This reserve is situated at the upper end of Anderson lake, being the most southerly portion of this agency. It has an area of 504 acres. The natural features are good bottom-lands, good hay meadows, excellent timber and good grazing lands.

Vital Statistics.—The population is 66, there having been 1 death and 1 birth during the year.

Health and Sanitation.—The health of this band has been good. Dwellings and surroundings are kept in a good sanitary condition.

Occupations.—They farm a little; have good vegetable gardens, raise quite a quantity of apples and small fruit, do some gold-mining, and during the salmon-run quite a number go to the coast and engage in catching these fish. Quite a revenue is obtained from cutting saw-logs on Crown lands, a ready market for which is obtained at the saw-mills. The women contribute also from the sale of baskets, which are sought after by tourists.

Buildings, Stock and Farm Implements.—These Indians have good dwellings and horse-stables, quite a number of horses, cattle and pigs, and are well supplied with farm implements.

Education.—None of the children of this band have ever received any education.

Religion.—These Indians are all Roman Catholics. They have a small church on the reserve and a missionary pays them regular visits.

Characteristics and Progress.—They are industrious and law-abiding and most of them make a good living.

Temperance and Morality.—They are temperate and moral.

BRIDGE RIVER BAND.

Reserves.—The reserves laid out for this band are along the left banks of the Fraser and Bridge rivers. The lands fit for cultivation are in small patches, but the Indians raise good crops of grain and vegetables. There are 9,761 acres reserved for this band. The natural features are bench-lands following the rivers and when cultivated all require irrigation. There is good grazing land on the mountain slopes.

Vital Statistics.—This band has a population of 105, a decrease of 4, there having been 4 deaths and no births.

Health and Sanitation.—The deaths occurring at this reserve were mostly amongst young children from whooping-cough; otherwise the general health was good. Their dwellings are kept clean and their suroundings in a good sanitary condition.

Occupations.—The occupations of these Indians are farming, working with white settlers and freighters and as guides and packers to tourists, hunters and gold-miners.

Buildings, Stock and Farm Implements.—They have very comfortable dwellings, good horse-stables, some good horses, a few cattle and pigs, and are well supplied with farm implements.

Religion.—They are all Roman Catholics and have a small church on the reserve.

Education.—None of the children of this band have received any education.

Characteristics and Progress.—They are very industrious and law-abiding and making good progress.

Temperance and Morality.—They are temperate and moral.

CANOE CREEK BAND.

Reserve.—The reserve of this band is situated on á small stream which empties into the Fraser river three hundred miles from its mouth. They have good agricultural lands ; but, owing to the scarcity of water for irrigation, only a small portion is cultivated. They have an area of 16,129 acres. Portions of this are hay meadows, from which they cut considerable hay for their stock. The natural features are open bench-lands, good grazing lands and fair timber.

Vital Statistics.—The population is 158, a decrease of 3 during the year ; there having been 2 births and 5 deaths.

Health and Sanitation.—There was no serious sickness amongst these Indians, most of the deaths being among old people. Their houses are kept clean, and sanitary regulations are observed.

Occupations.—Farming, and working as farm-hands and cowboys with settlers, and hunting and fishing are their chief occupations.

Buildings, Stock and Farm Implements.—They have fairly good dwellings and horse-stables, a large number of horses, a few cattle and pigs, and a good supply of farm implements.

Education.—A number of children from this band are being educated at the Williams Lake industrial school.

Religion.—They are all Roman Catholics. These Indians are very religious. They have a fine church on the reserve.

Temperance and Morality.—They are moral, but a few during the past year got intoxicated, the persons furnishing the intoxicant receiving the full penalty for this offence.

CAYOOSH CREEK BAND NO. 1.

Reserve.—This reserve is situated at the mouth of Cayoosh creek, where it joins the Fraser river, two hundred and twenty miles from its mouth. It contains 367 acres. The natural features are bench-lands following the river and good grazing lands along the mountain sides.

Vital Statistics.—The population is 33. There were no births and 1 death during the year.

Health and Sanitation.—Particular attention is given to keeping their houses and surroundings in a sanitary condition. There was no sickness amongst them.

Occupations.—Farming, fishing, hunting, gold-mining and freighting with their own teams are the principal occupations.

Buildings, Stock and Farm Implements.—They have good comfortable dwellings and good horse-stables. They have a few horses and cattle, wagons, sleighs, and a fair supply of farm implements.

Education.—A few of the children belonging to this band have attended the public school.

Religion.—They are all Roman Catholics.

Characteristics and Progress.—They are industrious and law-abiding and are making good progress.

Temperance and Morality.—They are moral and temperate.

CAYOOSH CREEK BAND NO. 2.

Reserve.—This reserve is situated about four miles from Cayoosh Creek No. 1 reserve on a bench above the Fraser river. It contains 785 acres. The natural features are open bench-lands and good grazing lands along the mountain sides.

Vital Statistics.—The population is 13, there having been 2 deaths and no births during the year.

Health and Sanitation.—The general health of these Indians has been good. They have comfortable dwellings, which they keep clean.

Occupations.—Farming, hunting, fishing and gold-mining are the principal occupations. The women earn considerable from sale of gloves, moccasins and berries.

Buildings, Stock and Farm Implements.—They have good dwellings, good horse-stables, a few horses, cattle and pigs, and a fair supply of farm implements.

Education.—A few children from this band attend the public school.

Religion.—They all belong to the Anglican Church. They have no church on the reserve. A missionary of the church pays them occasional visits.

Temperance and Morality.—They are moral and temperate.

CLINTON BAND.

Reserve.—This reserve is situated in the Clinton valley and contains 1,073 acres. The natural features are small flats and meadow-lands along the banks of a small stream running through the reserve, and timbered mountain slopes afford good grazing.

Vital Statistics.—The population is 45, a decrease of 1 during the year, there having been 1 birth and 2 deaths.

Health and Sanitation.—These Indians have enjoyed good health. There was no sickness amongst them. Their houses and surroundings are kept clean.

Occupations.—These Indians engage in farming, working as labourers with white settlers, hunting, fishing; and in winter supply the village of Clinton with fire-wood. The women make and sell moccasins and gloves, and in season sell berries of all kinds, which are plentiful in the vicinity.

Buildings, Stock and Farm Implements.—They have good dwellings and horse-stables, good horses, a few head of cattle and a good supply of farm implements.

Education.—None of the children of this band have received any education.

Religion.—They all belong to the Roman Catholic Church. They have a small church on the reserve.

Characteristics and Progress.—They are industrious and law-abiding, and make a comfortable living.

Temperance and Morality.—They are temperate and moral.

DOG CREEK BAND.

Reserve.—This reserve is situated on a stream of that name which flows into the Fraser river three miles from the village; it contains 1,371½ acres. The natural features are open bench-lands requiring irrigation and good grazing lands on the hills and mountain slopes.

Vital Statistics.—The population is 14, a decrease of 3 during the year, there having been 3 deaths and no births.

Health and Sanitation.—One of the deaths at this reserve was from accident, the two others from whooping-cough. Their dwellings are kept clean and are comfortable.

Buildings, Stock and Farm Implements.—They have good dwellings and horse-stables, a few horses, cattle and pigs, and a fair supply of farm implements.

Occupations.—Farming, fishing and hunting are their chief occupations.

Religion.—They are all Roman Catholics.

Education.—A few children belonging to this band attended the Williams Lake industrial school.

Characteristics and Progress.—They are industrious and law-abiding, making fair progress.

Temperance and Morality.—They are temperate and moral.

FOUNTAIN BAND.

Reserve.—This reserve is situated on the east bank of the Fraser river 250 miles from its mouth. It contains an area of 1,864 acres. The natural features are open bench-lands and good grazing lands on the surrounding hills and mountain slopes.

Vital Statistics.—The population is 205, an increase of 5, there having been 7 births and 2 deaths during the year.

Health and Sanitation.—The health of this band has been good. Their houses and surroundings are kept in good order.

Occupations.—They are employed by white settlers during haying and harvesting seasons, and in spring and fall when the streams are low, take out considerable gold; they also hunt and fish.

Buildings, Stock and Farm Implements.—They have a good class of dwellings, good horse-stables, a few good horses, cattle and pigs, and are well supplied with all kinds of farm implements.

Education.—None of the children of this band have received any education.

Religion.—They are all Roman Catholics. They have one of the best churches in the agency on the reserve, and a well trained brass band.

Characteristics and Progress.—They are law-abiding and industrious, and making fair progress.

Temperance and Morality.—There is a decided improvement in this respect, as no case of intemperance has been reported during the year.

HIGH BAR BAND.

Reserve.—This reserve is situated on the east and west sides of the Fraser river, and contains 2,924 acres. The natural features are open bench-lands and good grazing lands.

Vital Statistics.—The population is 54, an increase of 2, there having been 3 births and 1 death during the year.

Health and Sanitation.—The health of this band has been good. Dwellings and surroundings are kept in good order.

Buildings, Stock and Farm Implements.—They have a fair class of dwellings, good horse-stables, horses, cattle, and enough farm implements for their wants.

Occupations.—These Indians engage in farming, gardening, fishing and hunting, while quite a number find employment with white settlers as farm-hands. They also do some gold-mining in spring and fall.

Religion.—They are all Roman Catholics. They have a small church on the reserve.

Characteristics and Progress.—They are fairly prosperous and very industrious and law-abiding.

Education.—None of the children of this band have ever received any education.

Temperance and Morality.—They are temperate and moral.

KANIM LAKE.

Reserve.—This reserve is situated in the Bridge Creek valley, twenty miles to the east of the Cariboo wagon road, and contains 4,560 acres. The natural features are bench and meadow-lands along the river bottom, good grazing and also good hay-lands. The rest of the reserve is covered with good timber.

Vital Statistics.—The population is 69, a decrease of 14 during the year, there having been 20 deaths and 6 births.

Health and Sanitation.—The greater number of deaths occurring at this reserve were from whooping-cough ; the rest were mostly from pulmonary troubles. Most of their dwellings are of a good class and the sanitary conditions good.

Buildings, Stock and Farm Implements.— They have good dwellings and horse-stables, a good class of horses, cattle, pigs, and a few sheep ; and are well supplied with all kinds of farm implements.

Occupations.—Farming, stock-raising, working as farm-hands with white settlers, trapping, fishing and hunting are the chief occupations of this band.

Religion.—They are all Roman Catholics. They have a very neat church on the reserve and are very religious.

Education.—Most of the children of this band have attended the Williams Lake industrial school.

Characteristics and Progress.—They are very industrious and law-abiding and making fair progress.

Temperance and Morality.—They are temperate and moral.

LILLOOET BAND NO. 1.

Reserve.—A portion of this reserve is situated on the west bank of the Fraser river and the remainder six miles below on the east side, and contains 1,418½ acres.

The natural features are good bench-lands, suitable for cultivation, but all requiring irrigation, water for which cannot be got without great expense.

There is good grazing and fair timber land.

Vital Statistics.—The population is 57, a decrease of 5, there having been 2 births and 7 deaths during the year.

Health and Sanitation.—Most of the deaths at this reserve were from whooping-cough. The Indians have very comfortable dwellings, which are always in a good sanitary condition.

Occupations.—The occupations of these Indians are : farming, gold-mining, hunting, fishing, working as labourers, freighting, cutting fire-wood and acting as guides and packers to miners, tourists and hunters in search of big game, such as bears, mountain sheep and goats. The women contribute from the sale of berries and the manufacture of gloves, moccasins and baskets.

Buildings, Stock and Farm Implements.—They have a good class of dwellings, good horse-stables, horses, cattle and pigs, and a good supply of farm implements.

Education.—A few of the children have attended the public school at Lillooet.

Religion.—They are all Roman Catholics.

Characteristics and Progress.—They are industrious and law-abiding, and most of them earn a good living.

Temperance and Morality.—As a rule they are temperate and moral.

LILLOOET BAND NO. 2.

This band consists of only six persons. Their reserve is situated on the west bank of the Fraser river about twelve miles from the village of Lillooet, and contains 544 acres. The natural features are open bench-lands suitable for cultivation, and some fair timber-lands.

These people make a living by farming and gardening ; and in spring and fall they do some gold-mining.

They have good dwellings and horse-stables, a few horses, and a sufficient supply of farm implements.

PAVILION BAND.

Reserve.—This reserve is situated both on the east and west sides of Fraser river, and contains 4,136 acres. Its natural features are good bench-lands, good grazing and fair timber lands.

Vital Statistics.—The population is 67, there having been 1 birth and 2 deaths during the year.

Health and Sanitation.—The health of this band has been good. Sanitary regulations are well observed.

Occupations.—Farming, hunting, fishing, gold-mining and working as farm-hands with white settlers are their principal occupations.

Buildings, Stock and Farm Implements.—They have some good horses, cattle and pigs, and a good supply of farm implements. They have good dwellings and horse-stables.

Education.—None of the children of this band have received any education.

Religion.—They are all Roman Catholics. They have a small church on the reserve on the east side of the Fraser river, and one being built on the west side.

Characteristics and Progress.—They are excellent workers, law-abiding, and progressing favourably.

Temperance and Morality.—They are a moral people and strictly temperate.

QUESNEL BAND.

Reserve.—This reserve is situated on the east and west sides of the Fraser river and 450 miles from its mouth and 3 miles from the village of Quesnel. It contains 1,687½ acres. Its natural features are flats along the Fraser river, the upper benches being covered with heavy timber.

Vital Statistics.—The population is 64, a decrease of 7, there having been 5 births and 12 deaths during the year.

Health and Sanitation.—Several of the deaths were owing to whooping-cough. The Indians were well attended to by a medical man. Sanitation is not very well observed either about their buildings or persons.

Resources and Occupations.—Their chief occupations are hunting, fishing, boating, trapping, and a few as farm-hands with white settlers. They have fairly good gardens.

Buildings, Stock and Farm Implements.—They have a good class of dwellings and horse-stables, a few horses and a fair supply of farm implements.

Education.—None of the children of this band received any education.

Religion.—They are all Roman Catholics.

Characteristics and Progress.—They are law-abiding, but too lazy to do much towards cultivating their lands, relying mostly on hunting and fishing.

Temperance and Morality.—As a rule there are no complaints in this respect.

SETON LAKE OR MISSION BAND NO. 1.

Reserve.—This reserve is situated on the west side of Seton lake, and contains 2,085 acres. Its natural features are open bench-lands, timbered mountain slopes, and poor grazing lands.

Vital Statistics.—The population is 76, an increase of 4 during the year, there having been 5 births and 1 death.

Health and Sanitation.—The health of these people has been good. Dwellings and surroundings are kept in good order.

Occupations.—Farming, gardening, packing, hunting, fishing and gold-mining are their chief occupations.

Buildings, Stock and Farm Implements.—They have fair dwellings and horse-stables, a few horses and cattle, and farm implements sufficient for their wants.

Education.—None of the children of this band have received any education.

Religion.—They are all Roman Catholics. They have a small church on the reserve.

Characteristics and Progress.—They are industrious and law-abiding. Unfortunately the scarcity of water for irrigation purposes prevents them from putting in more crops; consequently they are not making much progress.

Temperance and Morality.—They are temperate and moral.

SETON LAKE OR ENIAS BAND NO. 2.

This reserve is situated on the east and west sides of Seton lake, and contains 188 acres. Its natural features are bench-lands and fair timber on the mountain sides.

There is only one man on this reserve and he makes his living by gardening, hunting and fishing.

SETON LAKE OR SLOSH BAND NO. 5.

Reserve.—This reserve is situated at the head of Seton lake, and contains eighty acres. Its natural features are bench-lands, surrounded by high mountains, heavily timbered.

Vital Statistics.—The population is 35, there having been 1 death and 1 birth during the year.

Health and Sanitation.—The health of this band has been good. The dwellings and surroundings are kept in good order.

Occupations.—These Indians engage in farming, gardening, boating, hunting, fishing and packing, with horses to the Bridge river gold mines. Their women are expert basket-makers and receive quite a revenue from their sale.

Buildings, Stock and Farm Implements.—They have fair dwellings and horse-stables, good horses, a few cattle and pigs, and a good supply of farm implements.

Education.—None of the children of this band ever received any education.

Religion.—They are all Roman Catholics. They have a small church on the reserve, and they are very religious.

Characteristics and Progress.—They are good workers and law-abiding.

Temperance and Morality.—They are a temperate and moral people.

SETON LAKE OR NECAIT BAND NO. 6.

Reserve.—This reserve is situated at the foot of Anderson lake, and contains 84 acres. Its natural features are bench-lands, surrounded by high mountains heavily timbered.

Vital Statistics.—The population is 49, a decrease of 4, there having been 5 deaths and 1 birth during the year.

Health and Sanitation.—Most of the deaths at this reserve were of children with whooping-cough. There is a decided improvement in their habits of cleanliness about their dwellings and surroundings.

Occupations.—Farming, gardening, freighting in boats and canoes, hunting, fishing, trapping, and as labourers with white settlers, are the chief occupations of these Indians.

Buildings, Stock and Farm Implements.—They have a good class of dwellings and horse-stables, a few horses, and a good supply of farm implements.

Characteristics and Progress.—They are industrious and law-abiding, and making fair progress.

Education.—None of the children of this band have ever received any education.

Religion.—They are all Roman Catholics. During the year they have been building a very nice church on the reserve, all the work being done by Indians.

Temperance and Morality.—They are temperate and moral.

SODA CREEK BAND.

Reserve.—A portion of this reserve is situated on the east side of the Fraser river, and the remainder along the Cariboo wagon road, about fourteen miles from the former. It contains 5,210 acres. Its natural features in the portion along the Fraser river are bench-lands, while the portion along the Cariboo wagon road is meadow land. There is good grazing at both places and good timber.

Vital Statistics.—The population is 81, no increase or decrease, there having been 4 births and 4 deaths during the year.

Health and Sanitation.—With the exception of a few cases of whooping-cough, the health of this band has been good. Their dwellings are kept in good condition and surroundings carefully looked after.

Occupations.—Farming, teaming, working as farm-hands with white settlers, hunting, fishing and trapping are the principal occupations of the men; while the women earn considerable from the sale of gloves, moccasins and berries.

Buildings, Stock and Farm Implements.—They have good dwellings and horse-stables, good horses, cattle and pigs, and are well supplied with all kinds of farm implements.

Characteristics and Progress.—They are industrious and hard-working and are making good progress on their reserve.

Education.—Some of the children of the band have been educated at the Williams Lake industrial school.

Religion.—They are all Roman Catholics. They have a small but comfortable church on the reserve.

Temperance and Morality.—They are temperate and moral.

STONE BAND.

Reserve.—The reserve of this band is situated on the west bank of the Chilcoten river, and has an area of 4,225 acres. Its natural features are bench-lands, good grazing lands and hay meadows.

Vital Statistics.—The population is 104, a decrease of 4, there having been 6 deaths and 2 births during the year.

Health and Sanitation.—The deaths occurring at this reserve were from whooping-cough and old age. Their dwellings and surroundings are in a fair sanitary condition.

Occupations.—Farming, hunting, fishing, trapping and working as farm-hands and cowboys with white settlers, are the chief occupations of these Indians.

Buildings, Stock and Farm Implements.—They have good dwellings and horse-stables, good horses, a few cattle, and a fair supply of farm implements.

Education.—None of the children of this band have ever received any education.

Religion.—They are all Roman Catholics. They have a small church on the reserve.

Temperance and Morality.—They are temperate and moral.

TOOSEY BAND.

Reserve.—This reserve is situated on Riskie creek, a small straem that flows into the Chilcoten river. It contains 6,352¼ acres. Its natural features are bench-lands, good grazing lands and hay meadows.

Vital Statistics.—The population is 62, a decrease of 1, there having been 2 births and 3 deaths during the year.

Health and Sanitation.—The general health of these Indians was good. Their dwellings and surroundings are kept in good order.

Occupations.—Farming, trapping, hunting, fishing, working as farm-hands and cowboys with white settlers are their principal occupations.

Buildings, Stock and Farm Implements.—They have good dwellings and horse-stables, good horses, cattle and pigs, and are well supplied with all kinds of farm implements.

Education.—None of the Indians of this band have ever received any education.

Religion.—They are all Roman Catholics. They have a small church on the reserve.

Characteristics and Progress.—They are very industrious and law-abiding, and steadily improving their reserve.

Temperance and Morality.—They are temperate and moral.

WILLIAMS LAKE BAND.

Reserve.—This reserve is situated in the Williams Lake valley. It contains 4,613¼ acres. Its natural features are good bottom-lands and excellent hay meadows surrounded by good grazing lands.

Vital Statistics.—The population is 155, an increase of 2, there having been 8 births and 6 deaths during the year.

Health and Sanitation.—There was no sickness at this reserve except whooping-cough, which in many cases proved fatal. Their dwellings are kept clean and their premises in a good sanitary condition.

Occupations.—They raise large quantities of grain and vegetables; they team, hunt and fish, and some find employment as labourers with white settlers at various occupations.

Buildings, Stock and Farm Implements.—They have good dwellings and horse-stables, horses, cattle and pigs, and are well supplied with all kinds of farm implements.

Education.—Most of the children of this band have from time to time been receiving education at the Williams Lake industrial school.

Religion.—These Indians are all Roman Catholics. They have a very nice church on the reserve.

Characteristics and Progress.—They are very industrious and law-abiding and are making steady progress.

Temperance and Morality.—They are temperate and moral.

GENERAL REMARKS.

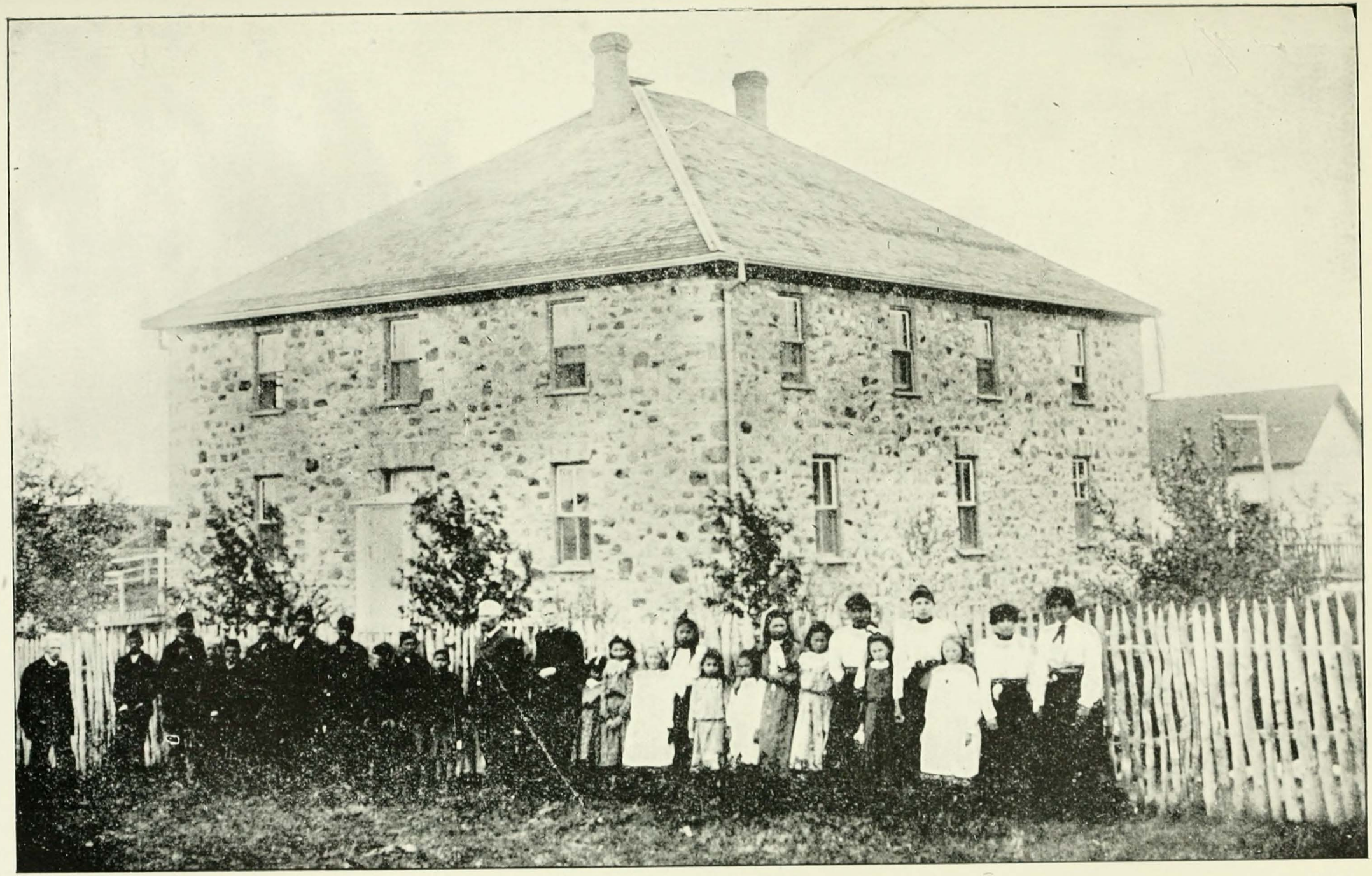
The Indians throughout this agency are steadily progressing in farming and are gettings rid of their bands of wild horses and replacing them with cattle, as a market for the latter can always be got at fair prices.

The industrial school at Williams lake, under the careful management of the Rev. H. Boening, principal, and the various teachers under him, continues to do excellent work, and it would be difficult to find a school of this kind kept in better order than this has been.

I have, &c.,

E. BELL,

Indian Agent.



GORDON'S SCHOOL, NEAR KUTAWA, ASSA.

BRITISH COLUMBIA,
INDIAN SUPERINTENDENT'S OFFICE,
VICTORIA, October 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to forward my annual report upon Indian affairs in the province of British Columbia for the year ended June 30, 1904.

The annual reports and statistical statements received respectively from the different Indian agents (9) throughout this important superintendency have been without delay forwarded to Ottawa, and it affords me pleasure to be able to state that these returns were, in accordance with the instructions of the department governing such matters, received at an early date and as nearly as possible in the prescribed form.

Following the different headings as arranged by the department for our guidance, will be found a brief summary furnishing such particulars in reference to the progress and advancement of the natives of this country, as, I trust, will be of pleasing interest.

Population.—From the returns under this head, received from the different agencies, it will be seen that there has been an increase in the population throughout five of the agencies, whilst there has been a decrease noticeable in the other four. The mortality in the latter resulted chiefly from an epidemic of whooping-cough ; from the natural passing away of old people, and from the ravages of consumption and hereditary scrofulous affections.

Health and Sanitation.—With the exception of the epidemic and diseases mentioned, the general health during the year of the native people throughout British Columbia was never better, in fact has been unusually good. This satisfactory condition may in part be accounted for by the excellent weather prevailing during the period reported upon and also, in a great measure, to the advance being made amongst the majority of the Indians in improved sanitary measures, which is mostly the result of the continued and effective persuasion and supervision of the agents and missionaries and in a degree to the example set by white families who are each year settling in their neighbourhood. The Indians are also improving in intelligence and realizing how necessary it is for the welfare of themselves and families to profit by the lessons taught them in connection with a matter of such vital importance.

Most satisfactory results are as usual reported from the hospitals assisted by the department ; these charitable and much required institutions being regarded by the whites and Indians alike as a blessed refuge to those who may be afflicted with ill health and, especially so, to such as may be in indigent circumstances. Every praise is due to those under whose kindly management the charitable and healing aid afforded is administered in these establishments.

Vaccination, where necessary, has been generally attended to in the different agencies and, happily, the opposition met with in earlier years, when attempting the operation, is gradually dying out, the Indians, having experienced the beneficial effects, now bear the very often painful results, owing to the impurity of their blood in many instances, with fortitude.

Resources and Occupations.—The following embraces the different occupations and pursuits followed by the British Columbia Indians in their struggles for existence and advancement ; canning clams and salmon, on a small scale ; as fishermen and at

other employments around the canneries during the fishing season ; fur-sealing on their own account, and as hunters on schooners owned by white men ; curing salmon, halibut and other fish products, for sale and for home consumption ; catching fish and hunting game in season, which they sell profitably at different cities and towns ; building fishing-boats and other craft as well as canoes for their own use and for sale; manufacturing dog-fish and oulachon oil ; farming, gardening and working as farm-hands on the ranches of their white neighbours ; stock-raising and employment as cowboys on many of the cattle ranges ; logging on their own account and working in saw-mills ; employment as trimmers on ships loading coal, for which they are paid from $3 to $5 a day; loading lumber on ships for export, at whch they earn equally high wages ; as sectionmen on railways and labourers on provincial roads ; as guides to hunters, miners and others; mining on their own account and for hire; hop-picking ; dairying on their own reserves ; fruit-culture ; poultry-raising ; making curios (mostly during the winter season), copied from ancient native models, for which they find a ready sale to tourists ; working as carpenters, and in various capacities, chiefly in new towns springing up all over the province ; cutting cord-wood for sale to canneries and to steamboat-owners on Crown lands ; acting as interpreters ; as lighthouse keepers, and engaging from time to time in all such desultory occupations wherefrom they expect to derive sufficient remuneration to recompense them for their labour. The Indian women, it may be remarked, are also money-earners to no inconsiderable extent; during the canning season and at the hop-fields they find profitable employment; they engage extensively in the manufacture of baskets, which they dispose of profitably to tourists and others ; they cure and dress deer and cariboo skins, out of which are made gloves and moccasins; and they frequently find a market for dressed skins intact, they being useful for many purposes ; mats from the inner bark of the cedar and of rags are also made, some of which are of an attractive and superior quality ; they make their own and their children's clothing, being much assisted in the latter by sewing and knitting machines ; they also gather large quantities of berries, which in some cases they sell among the white people, a major portion is, however, dried for winter use ; in doing chores and laundry work for their white neighbours they also find considerable employment.

Buildings.—Throughout, the majority of the agencies each year shows a great improvement in the class of residences as well as farm-buildings, outhouses, &c., being constructed. Quite a number of their dwelling-houses are large and commodious two-stroy edifices, while in addition to these are to be seen many cottages substantially constructed and of more or less ornate design. In some instances these residences are nicely painted and comfortably furnished, very frequently flower gardens tastefully fenced are attached and where there are no gardens, potted flowers in the windows or on the verandas are often seen. The Indians are each year, to an encouraging extent, becoming less childish in their estimate of money and instead of throwing it away in useless and unprofitable purchases, they now, in many instances exercise care in selecting what may add to the comfort of themselves and families.

Stock.—Where the land within the reserves is suitable, stock-raising is successfully carried on. The breed of cattle and horses is being each year improved, and, owing to a demand in the Northwest for such animals, the cayuse or native pony, which is very serviceable for packing purposes, is gradually being got rid of, hundreds having been disposed of and a better class of animal obtained instead. As the Indians become more settled in their habits, they acquire sheep and pigs, which on account of their being easily kept, prove profitable and are being kindly taken to by the Indians. Poultry are also extensively reared, &c.

Farm Implements.—The Indians meeting so many competitors in the labour market, owing to the influx of whites and others into the country during late years, find that they can no longer make money easily when disposed to work and consequently give more attention to the resources within their reach, such as farming and stock-raising. They in very many instances prove most industrious and as they realize

the benefits derived therefrom endeavour, when within their means, to obtain farm implements of the best and most improved kind; their efforts in this direction have to a pleasing extent been realized, as now, on many of the reserves where the land is favourable to profitable agricultural pursuits, may be seen improved farm implements of every description, including reapers and binders, mowers and threshing-machines, worked, some by steam, but mostly by horse-power. In addition to saving and harvesting their own crops, their enterprise, the fruits of their own labour, enables them to do considerable work at a fair profit for their white neighbours.

Education.—The industrial and boarding schools, of which interesting and full reports have been duly forwarded to the department, are doing good work and afford encouraging and satisfactory evidence of results most favourable to the efficiency of such establishments as a means of leading the Indians, young and old, to a more advanced civilization which, in addition to the advancement at present enjoyed, points to a more improved condition each year and to a consequent fallng off, especially among the young and middle-aged natives, in their barbarous and superstitious beliefs and customs, which so retard the work of their well-wishers in all efforts towards the amelioration of their condition generally. It may be of interest to state that the suspicion and dread which filled the hearts of many of the parents, when these schools were not so well established, is dying out and is being replaced by a wholesome realization of the benefits conferred by a course of careful education and training upon the young people; this feeling is fully shown by the number of applications for admission into these comfortable homes where the pupils are treated with the greatest kindness and every care is taken of them physically, mentally and morally; the older Indians now take much pride in their offspring when they see them growing up under such promising auspices and being thus raised to a position not only enabling them to improve their own individual position, but also help their fellow tribesmen and women, to whom they are a sort of providence and amongst whom they find profitable employment. The number of native stores conducted on the reserves by Indians, educated at these schools, is increasing and not only that, but in some cases the confidence and ambition created by such enlightenment has induced a few to go into higher mercantile pursuits, on a small scale, with a fair chance of success. The female ex-pupils find employment in respectable families as nurse girls and general maid servants, &c., and give very good satisfaction. While upon this subject, I cannot very well close my remarks without according to the members of the different denominations, under whose care and guidance these seats of learning are conducted, every praise for their devotion to the work in hand. It is also satisfactory to know that the pupils, as a general thing, prove intelligent and become amenable to the discipline necessary to proper order and good management, thereby showing a desire to profit by the instruction afforded them and an appreciation of the great care bestowed upon them, with a view to their ultimate welfare, by their teachers and by the department.

Religion.—Religious services and observances are practised by the christianized natives throughout the superintendency with commendable zeal and piety. Many of the pagan Indians from time to time join one or another of the Christian denominations, and although some still firmly adhere to the superstitious beliefs and customs prevailing in the olden times, there is every reason to believe that in a few years, as the older Indians pass away, all will be gathered into the ranks of Christianity. The number of churches and chapels is increasing, many of these places of worship being beautifully fitted up at a great expense, to the delight and pride of the worshippers.

Characteristics and Progress.—The British Columbia Indians, being self-supporting, are naturally to a great extent energetic and industrious, keeping their families in comfort and in some cases accumulating valuable property in stock and expensive farm machinery, &c. In many places they turn out voluntarily with teams and wagons, pick and shovel, and do extensive and valuable work on the public roads in the vicinity of their reserves. They are nearly all good handicraftsmen and have in places constructed substantial often and extensive bridges, in a manner creditable to skilled

workmen. Of late, incited by the growing knowledge of the value of the land on their reserves, as a matter of future support, they have erected miles of good fencing, and have devoted more attention to the working of the ground at their disposal. Some hundreds of tons of wheat are raised annually and delivered at the flour-mills. There are also striking instances of the capabilities of the natives as farmers and stock-raisers.. In some instances individual Indians have large herds of as fine cattle and horses as can be seen on the majority of ranches owned by white men; others, though not so well off, are heading in that direction, and the cry for more land is not of infrequent occurrence. Efforts have been made on behalf of some of these to obtain leases of grazing mountain-land from the provincial government, but all such applications have been invariably refused. There are instances of individual Indians of a more independent turn than others, having branched out for themselves, leaving their reserves and, with the permission of the Lieutenant Governor in Council, pre-empting homesteads under the British Columbia Land Act; as a rule they do very well and afford a wholesome object lesson to their less energetic and ambitious tribesmen. They are in many settlements rapidly getting into the ways of the white man, taking a hearty interest in all such matters as tend to the welfare of the community generally.

Of course there are yet numbers whose situation and environments are less favourable to progress, and who, consequently, seem slow in their advance towards civilization and steady prosperity. It is, however, but a matter of time when these people, as a whole, will have settled down and adopted one or other of the many industrial occupations followed by their more enlightened white neighbours in their general battle for the means of maintaining a comfortable existence. At the present time they are, to a highly commendable degree, law-abiding and friendly, not only towards their own people, but to all others coming in contact with them. Crime is very rare in their communities and notwithstanding the many temptations that beset them through the machinations of worthless and evilly-disposed white men, &c., they pass through the ordeal creditably, much more so, it is generally thought, than would their tempters, with their boasted civilization and superior enlightenment, were they similarly exposed.

Temperance and Morality.—The majority of the Indians in these respects are worthy of admiration, the manner of their lives exhibiting a higher standard of sobriety and morals than is to be observed in the conduct of many of the white people moving amongst them, whose bad example cannot but be deplored by every right-thinking person, acting as it must as a serious impediment to the efforts of the missionaries and others who are striving for the betterment of the mostly unsophisticated native. Unfortunately, as are to be found in all communities, there are some whose lives are far from being exemplary, such as those who have been freely exposed to temptation in earlier days and have acquired habits of dissipation and idleness difficult to overcome; while others, owing to unfavourable environments, cannot resist the temptation afforded to indulge their appetites.

Much good has resulted from the efforts of the detective constables employed by the department in prosecuting and bringing to punishment unscrupulous persons caught selling or supplying intoxicants to the Indians, and there is a notable falling off in that nefarious traffic observable in the localities in which these officers have been acting.

General Remarks.—The desire of the department regarding the inspection of the Indians committed to their care by the Indian agents is constantly kept in view, the latter being urged to visit their charges as frequently as possible and to impart on such occasions that counsel and advice which their circumstances most require. As may be expected, the increasing spread of the white settlements produces at times a certain amount of friction between the settlers and the Indians. Where it is possible, these differences are promptly attended to by the agents in the interests of all concerned. The trouble arising from the indulgence in intoxicants by the natives is becoming less

frequent, although unfortunately owing to the increasing demand for sensational reports, such happenings come more prominently, and in an exaggerated form, before the public, than was formerly the case.

The appointment of salaried medical officers throughout the superintendency, wherever practicable, has given very general satisfaction, and while affording more regular and effective treatment to the indigent sick Indians is, I consider, less expensive than has been the practice under the old sysem of fees, &c.

At remote places where there are no resident physicians such medicine as may be absolutely necessary continues to be supplied for dispensation by the agents and the missionaries amongst the Indians who are too poor to help themselves. To those of the natives who through sickness, old age, or from other causes, are in need of such assistance food and clothing is at times given, care being taken to see that none but the needy be so relieved.

Seed and Implements.—Those requiring assistance under this head are, owing to improved conditions, decreasing in number; there will, however, always be some applicants entitled to such aid.

The benefits arising from the assistance given by the department in the construction of dykes and irrigation ditches on some of the reserves have proved substantially satisfactory. To a considerable extent the bands thus aided are able to obtain fair crops from land that previously was quite unfit for cultivation and consequently unproductive. Such consideration towards the natives creates a healthy stimulus in the direction of increased labour upon and attention to their farms and is thus beneficial not only to those directly profiting by the expenditure, but to others who from example are induced to make more active efforts on their own behalf.

In conclusion I am happy in being able to add that during my visitations throughout the superintendency a steady advance was generally noticeable, the Indians as each year advances falling more and more into the ways of their white neighbours, whom it is their ambition, in many encouraging instances, to imitate ; no cases of destitution were apparent, while many evidences of advancement were to be seen in the direction of improved dwellings and more comfortable homes. Men, women and children were observed who were better clad and better fed than many whites of the poorer class; substantial fences were seen on some reserves for miles in extent; in some places productive kitchen gardens had been laid out, fruit and flowers being also successfully cultivated. Sheep, pigs and poultry, give an air of comfort and prosperity to many of the native settlements, and, to a pleasing extent, children were to be seen clean, well cared for, healthy and happy. In nearly every village church bells are to be heard at fitting intervals during each day, evidencing a peaceful, contented and devotional spirit amongst these simple and primitive people.

I have, &c.,

A. W. VOWELL,
Indian Superintendent.

PROVINCE OF BRITISH COLUMBIA,
REPORT OF INDIAN RESERVE COMMISSIONER,
VICTORIA, January 4, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to embody herein for the information of the department the following report in connection with the work undertaken by the Indian Reserve

Commissioner and by the respective surveyors whose services have been engaged for the purpose of surveying Indian reserves, &c., in the province of British Columbia, during the past year, ended December 31, 1903.

On May 11, last, Surveyor Skinner, under instructions, proceeded to Douglas, situated at the head of Harrison lake, in the Fraser agency, where he surveyed the following small reserves, viz.:—No. 2A, Sachteen; No. 5A, Sklah-hesten; No. 9, Morteen; No. 10, Franks, and No. 11, Perrets; the above work was done satisfactorily and his return to Victoria reported on June 11.

These reserves, it may be mentioned, were defined by the late Indian Reserve Commissioner in 1897, since which date a favourable opportunity for their survey did not occur till the time mentioned.

Subsequently, on June 14, Mr. Skinner was dispatched to the west coast of Vancouver island for the purpose of surveying reserve No. 4, a fishing station, for the Pecheena Indians (defined by the late Indian Reserve Commissioner on October 30, 1894) ; Mr. Skinner having completed this work reported at Victoria on June 22, when he and his party were paid off.

In accordance with the desire of the department, Surveyor Williams, of Quesnel, was instructed on May 2 to survey the reserves allotted by me in 1901 for the Indians of Ulkatcho and Kluskus lake, respectively. In the prosecution of this work he left Quesnel on May 19, and, having finished the surveys, returned to Quesnel on July 19, where he was engaged until August 15, copying his field-notes and making plans, &c.

For some time past it has been considered desirable to have a resurvey made of reserves No. 4, 4 A, 10, 11, 11 A, 12, 13, 14 and 15, Cook's Ferry, and reserve No. 1 A, Bonaparte, all of which are situated within the Railway Belt; owing, however, to the difficulty experienced in the way of obtaining the services of a Dominion land surveyor, the work has, unavoidably, remained in abeyance.

After much inquiry last spring, I was, through the kindness of Mr. McKenzie, Dominion Land Agent, New Westminster, enabled to secure the services of Mr. Peter Burnet, D.L.S., who was instructed on May 16 to complete the work referred to. In consequence of previous engagements, Mr. Burnet was prevented from commencing the surveys till June 18, from which time till August 10, he was so occupied; he then proceeded to Lytton and, in accordance with instructions contained in the department's letter of June 9, 1903, No. 100,340, surveyed the small addition to the Klick-kum-cheen reserve at that place, returning to Vancouver on August 12.

Inclosed herewith will be found Messrs. Skinner's, Williams' and Burnet's reports, which give evidence of due diligence having been observed while in the field.

On September 10, accompanied by Surveyor Green, I left Victoria on the steamer *Tees* for Port Essington, en route to the Nass and Skeena rivers, where we arrived on the 16th of the same month. Indian Agent Morrow was there to meet us, having provided a canoe and crew of Indians for our trip up the Lakelse river. The next day we started on the steamer *Hazelton* for the mouth of the Lakelse, some forty-five miles up the Skeena, where we arrived at 8 a.m. the following morning; very heavy rain was falling, but, having canoe and Indians engaged, no time was lost in pushing up stream.

The Lakelse river is very rapid and in many places shallow, which renders it impossible to take up a heavy-laden canoe, on account of which we had to engage the services of two extra Indians with another canoe to take part of the load up stream; this we were able to do with but little delay, there being an Indian reserve close by where we procured the needed help. Poles had to be used nearly the whole time and occasionally tow-lines, which made our progress slow and particularly unpleasant, the downpour of rain never ceasing. Early on the 19th, we arrived near the head of the river, when the Indians pointed out the fishing camp they required. We immediately camped and subsequently, after a careful examination of the ground, which was most difficult on account of fallen timber, dense growth of underbrush, prickly plants, &c., &c., I allotted as a camping-ground and fishing-station for the Indians twenty-one

acres, part of which, having been used for generations as a camping ground, was rich, open, fern-land, upon which the rude houses they had constructed for temporary use were placed.

The reserve contains sufficient timber for the Indians' requirements, the latter expressing themselves as highly pleased with the allotment. While on the ground the survey of the reserve was completed by Mr. Green, assisted by the Indian crew.

On the morning of the 23rd we broke camp and returned down stream to the Skeena river, where we camped the same day close to the mouth of the Lakelse for the purpose of having the Killutsal reserve, No. 1, surveyed by Mr. Green. This reserve was laid off by the late Indian Reserve Commissioner in 1892, and upon examination it was found that it did not include the burial-ground, to cover which, at the special request of the Indians and to avoid future trouble, I thought it most advisable to take in an additional five acres contiguous to the northwest corner, which not only included the grave-yard, but an Indian house as well.

Before arriving at the mouth of the Lakelse, I was met by Mr. Morrow, who, having returned from an Indian village near Kitselas canyon, to whcih place he had proceeded on the steamer to attend to some important Indian matters, joined our party and accompanied Mr. Green part of the time while engaged in the survey of the Killutsal reserve.

On the 26th, Mr. Morrow and I returned to Port Essington on the steamer *Hazelton*, which was going down river on her return from the Forks of Skeena.

Mr. Green completed the survey and returned to Essington on the afternoon of October 2, when the Indians were paid off, and we held ourselves in readiness to proceed to the Nass at the first opportunity.

On October 3, we were able to secure a passage on the steamer *Chieftain* to Port Simpson. We left at 7.30 p.m., and the steamer having to touch at Kitkahtla, we did not arrive at Port Simpson till next forenoon, having picked up Agent Morrow en route at Metlakatla. I may mention that, there being no accommodation for passengers on the *Chieftain*, Mr. Green and I had to sit up all night and suffer other inconveniences incidental thereto.

From Port Simpson we secured a passage to Port Nelson, at the mouth of Nass river, on a little steamer (equally uncomfortable) leaving for that place on the day following ; having secured a canoe and Indian crew, we started up the river, camping out two nights and arriving at Aiyansh village on the Kitlacdamax reserve, No. 1. As reported on July 11 last, No. 256-7, the Indians resident on this reserve petitioned that it should be divided between the people living in the village of Aiyansh, who have embraced Christianity, and those dwelling in the old village of Kitlacdamax, who still adhere to the old belief and customs, as there was considerable friction between them arising from disputes in connection with the land, &c. After several meetings with the Indians, who were not unreasonable in their demands, I was able to make a division that I consider equitable and whcih I am pleased to say was apparently satisfactory to both parties. While there, Mr. Green, in addition to running the dividing line, was able to retrace part of the boundaries of the original reserve and to reset some of the posts which had disappeared through decay or from other causes.

On October 14, we left Aiyansh, proceeding down river about eight miles to the new Indian village of Kwinaha; the old village situated near the head of the canyon on Kitwilluckilt reserve No. 7, was destroyed by fire about two years ago and the site abandoned on account of the bad water in its immediate vicinity, where, the Indians report, many women and children had been drowned in the past. The site selected for the new village is about a mile below that of the old one and closely approaches the northern boundary of the Zaulzap reserve, No. 29. There they have erected some eleven substantial and, mostly, modern houses. The point upon which they stand, although of small dimensions, and having natural boundaries, was not included in the reserve last named ; at the earnest request of the Indians the point above mentioned, consisting of about seven acres, was added to Zaulzap reserve and surveyed before

leaving. The natives were very grateful to the department for securing this piece of land to them and their children, &c.

Continuing down the river, I arrived at Lackaltsap reserve No. 9, on October 15, where the Indians complained of the unsanitary condition of the water-supply of the village owing to the proximity of their old burial-ground, which they asserted drained into the spring. On that account they said they had been obliged to abandon the old grave-yard and establish a new one. On examination it was found that the latter was not on the reserve, that it contained several graves upon which were erected expensive headstones. Under the circumstances narrated, I considered it advisable to reserve five acres for the purpose named, subject to the approval of the department and provincial government. This piece of land was also surveyed while on the ground. I may say that the Indians, when asked why they started a new grave-yard on land not included in their reserve without first having gained permission to do so, stated as their excuse that they had no one to apply to, the late agent not having visited them for years. This I do not believe to be altogether correct, and so informed them with a caution not under any circumstances to go outside their reserve in future.

Having completed the above described work and held a large meeting at Kincolith, I arrived at Port Essington on October 21, having called at Port Simpson and Metlakatla en route. During nearly every day from the time we first landed at Essington till our return, the rain was incessant and unprecedented even in that notoriously damp country, making the work very disagreeable and at times most difficult to accomplish.

The minutes of decision and plans of the several allotments referred to are being prepared and will be forwarded to the department as soon as Mr. Green can complete that work and the approval of the provinical government is obtained.

The survey of all such Indian reserves as have been laid off up to the present date has now been completed with the exception of those in Nemiah valley and a small one at Sechelt. The survey of the former, owing to the nomadic habits of the Indians for whose use they were allotted, it is considered advisable to leave in abeyance for the present, while the latter can be attended to by Surveyor Green in the near future.

I have, &c.,

A. W. VOWELL,
Indian Reserve Commissioner, B.C.

PROVINCE OF BBITISH COLUMBIA,
SURVEY REPORT OF E. M. SKINNER,
VICTORIA, June 23, 1903.

A. W. Vowell, Esq.,
Indian Reserve Commissioner,
Victoria, B.C.

SIR,—I have the honour to present the following report upon the survey of reserves Nos. 10, 11, 9, 5A and 2A for the Douglas tribe of Indians, and the survey of reserve No. 4 for the Pacheena tribe on the west coast.

Acting under your instructions, I left Victoria on May 11 by the steamer *Charmer* and arrived at Agassiz station on the 12th. After a delay of one day at Agassiz to secure provisions and labour, I left on the 14th and arrived at Douglas at the head of Harrison lake the same day.

Having secured pack animals, I moved to the reserve on the 11th and commenced work the next day. Having completed reserves Nos. 10 and 11 with the connection on

the 20th, I moved the camp to reserve No. 5A on the 21st and commenced work the next day, completing the survey with the connections to reserves Nos. 10 and 9 on the 28th.

Having made the survey of reserve No. 9, I moved to reserve No. 2A on June 3 and commenced work the next day, finishing it the day after, thus completing all the work entrusted to me.

Moving down the road on the 6th, I arrived at Douglas on the 7th, where I was delayed for two days before being able to secure a passage down the lake. Leaving Douglas in the evening of the 9th, I arrived at Agassiz on the 10th, where I paid off the men hired there. Leaving Agassiz on the 10th, I arrived at Victoria the same day, and paid off the men the following day.

Receiving instructions to proceed to San Juan on the West Coast to survey one reserve for the Pacheena tribe, I left Victoria in the evening of June 14 by the steamer *Queen City* arriving at San Juan in the morning of the next day. Securing a canoe and two men, I proceeded up the river the same day. Commencing the survey of the reserve on the 16th, I completed it and moved down to Port Renfrew on the 17th, unfortunately too late to catch the steamer.

I was delayed at Port Renfrew until the 21st, when taking passage by canoe in the morning, I arrived in Victoria in the evening of the same day, and paid off the men taken from Victoria on the day following.

I inclose a schedule of the reserves surveyed and distance run, which will, I trust, prove satisfactory.

I have, &c.,

E. M. SKINNER.

SCHEDULE of Reserves surveyed by E. M. Skinner, 1903.

Date.	Reserve.	Acres.	Chains.	Miles.	Chains.	Remarks.
May..	No. 11 Douglas Indians		86.96			
" .	Connection No. 11 to No. 10		39.13			
" .	Reserve No. 10		154.41			
" .	" No. 5		227.19			
" .	Connection No. 10–No. 5		144.33			
" .	" No. 5 to No. 9		124.49	9	56.51	
June..	Reserve No. 9		122.20			
" .	" No. 2 A		114.39			
" .	" No. Pacheena		93.41	3	5.90	
				12	62.41	

E. M. SKINNER,

Surveyor.

PROVINCE OF BRITISH COLUMBIA,

SURVEY REPORT OF PETER BURNET, D.L.S.,

VANCOUVER, December 1, 1903.

A. W. Vowell, Esq.,

Indian Reserve Commissioner,

Victoria, B.C.

SIR,—I beg leave to report that I have completed the survey of the undermentioned reserves according to instructions received from you, dated respectively May 16 and June 17, 1903.

I first commenced operations on the Bonaparte reserve No. 1A, where I had some difficulty in ascertaining starting points, &c., as many mounds were obliterated and others were so evidently out of place as to be valueless.

The land of this reserve is of very little value either for agricultural or pastural purposes, portions of it are much broken by steep ravines and deep gulches. The timber on sections 2 and 3, township 22, is very scattered and inferior in quality; but on sections 33 and 34, fairly good timber is to be found.

From Bonaparte, I transported camp equipage as far as Ashcroft by wagon. From there to Highland Valley pack horses can only be used, there being only a trail. Ascertaining that no pack horses could be obtained after leaving Ashcroft, and knowing it would be necessary to move our camp frequently, I thought it best to take the horses through to Spence's Bridge. Those known as the Highland Valley reserves are No. 12 (Chilthnux), No. 13 (Quillonton), No. 14 (Enquotco), No. 15 (Squetankilhats). No one is residing within miles of any of these reserves. I had difficulty in finding the different starting points, but those being ascertained, the survey was comparatively easy. The lines as defined, I presume by D.L.S. Fletcher, I found approximately correct, and in most cases well defined.

Each of these reserves contains a large percentage of meadow-lands and is evidently used only as hay-lands and occupied only for a few days during the haying season. Were the meadows properly cared for, I believe them capable of giving large returns. Outside of the meadows the land is of little value, and what timber there is is of a very poor quality. I made traverse connecting the different reserves and also from eastern boundary of reserve No. 15 to the nearest available recognized Dominion survey (N.E. corner section No. 5, tp. 18, range 21, west of the 6th meridian).

From Highland Valley I proceeded to Spatsum and made correction survey of boundaries of reserves No. 11 and 11A; the land of these reserves is of little or no value for agricultural purposes. From Spatsum, I moved camp to No. 10 (Pokheitsk) and made correction survey. From there I proceeded to Spence's Bridge and made survey of reserves 4 and 4A. As will be seen from plan accompanying field notes of survey a large portion of No. 4 (as shown on original plan thereof) has been washed away by the Thompson river, thereby very materially lessening its acreage, as also the area intended to be given in No. 4A.

From Spence's Bridge, I proceeded by train to Lytton, and made survey of addition to reserve No. 18 (Klickkumcheen). This latter survey was made on August 11, and on August 12 myself and chainbearers returned to Vancouver.

I sincerely regret the long delay in completing returns, but it has in a great degree been unavoidable, as owing to two attacks of illness, I have virtually been incapacitated from work for many weeks, and am now only able to do a little office work occasionally.

I have, &c.,
PETER BURNET, *D.L.S.*

PROVINCE OF BRITISH COLUMBIA,
SURVEY REPORT OF SIDNEY WILLIAMS,
QUESNEL, August 15, 1903.

A. W. Vowell, Esq.,
Indian Reserve Commissioner,
Victoria, B.C.

SIR,—I have the honour to report that in accordance with the instructions contained in your letter of May 2 last, I left Quesnel on May 19, travelling with Telegraph trail and Blackwater river, and reached Kluskus reserve No. 4 on Euchiniko lake on

the 26th. This journey was very trying on horses, as feed was very poor, practically no new grass having commenced to grow for this season; the distance travelled each day was consequently very irregular, and the horses wandered considerably, although very little actual delay was caused on this account.

In order to save time and give the horses as much rest between long journeys as possible, I made the surveys in the following order :—

First, Kluskus reserve No. 4.
Second, Kluskus reserve No. 1.
Third, Uhlcatcho reserve.
Fourth, Kluskus reserve No. 2.
Fifth, Kluskus reserve No. 3.

By reference to the map, you will notice that by this method it was unnecessary to travel over the same ground twice, excepting the journey to and from Uhlcatcho. Upon completing Kluskus reserve No. 3, I came direct to Quesnel, via the Nasko river, which journey was accomplished in four and a half days, as against seven days via Blackwater river.

Upon arriving at each of the four different locations, the weather was wet and sky overcast, and I was unable to take observations the first day. Fortunately in each case at Kluskus, I was able to commence traverses with a presumed meridian, so that no time was lost; at Uhlcatcho I employed the spare time in laying out a long base for triangulation of the lake.

I found everywhere a great deal of local magnetic attraction, the needle continually changing between N 23° 30 W and N 30° W. For this reason it was difficult to determine the precise magnetic variation.

A good deal of rain fell during the trip, especially at Uhlcatcho, although only two days were lost on this account ; it was, however, often difficult to keep the transit in working order on account of heavy rain.

KLUSKUS RESERVE NO. 1.

The south boundary from the lake to the southwest corner did not include a small grassy flat adjoining the lake and south of the creek. The Indians were anxious to have this flat included in the reserve, but as your plan clearly shows the boundary being near the creek, I did not feel that I was justified in making any change.

CHANGE IN UHLCATCHO RESERVE.

I found it necessary to extend this reserve forty chains further north in order to take in cabins at the north side of Avalka lake ; this increased the area by six hundred and forty acres in this direction. In order to retain the original area as nearly as possible, I extended the northern part of the west boundary south eighty chains and by so doing discarded six hundred and forty acres, this latter was mostly composed of small rocky peaks and was even more worthless than the rest of the reserve. These changes were only made after much deliberation, and will, I hope, meet with your approval. In other respects I found the sketch plans remarkably accurate.

As you will see by my diary, the party was engaged at Quesnel on May 18, and returned there on July 18 ; this period included sixty-two days, or deducting eight Sundays and two statutory holidays, fifty-two working days. As we made two short drives on Sunday and Monday, May 24 and 25, on account of horse feed, adding another day, this will bring up the total working days to fifty-three.

These days were employed as follows :—

	Days.
Preparing for trip	1
Travelling	19
Surveying	31
Lost through rain	2
	53

The total distance travelled as nearly as could be estimated was 379 miles as follows :—

	Miles.
Quesnel to Kluskus reserve No. 4	118
Reserve No. 4 to reserve No. 1	9
Kluskus to Uhlcatcho and return	140
Moving camp at Uhlcatcho	10
Kluskus to reserves Nos. 2 and 3	6
Reserve No. 2 to Quesnel	96
	379

This makes an average of twenty miles per day. I may say that the trails on our outward journey were in much better condition than on our return ; on the other hand, horses were in better order, and packs lighter returning. We were most fortunate in being able to ford the Blackwater at the crossing two days out from Kluskus to Uhlcatcho both going and returning, as during our stay at Uhlcatcho, this river rose several feet owing to the heavy rains and there was plenty of evidence to show that all the low country adjacent to the river had been inundated. Had this occurred while we were en route, we should probably have been delayed for several days. The time surveying was taken up as follows :—

	Days.	Chains.
Kluskus reserve No. 4	2½	170·00
Kluskus reserve No. 1	8	467·17
Uhlcatcho reserve	14	1,200·00
Kluskus reserve No. 2	4	322·23
Kluskus reserve No. 3	1½	120·00
Connection of two latter	1	90·70
	31	2.370·10

Making an average of 76.46 chains per day. This does not include extra lines run to tie in villages and 30 chains run at Uhlcatcho and abandoned.

From July 18 till to-day, my time was occupied in making up my accounts, paying off men, copying my field books and drawing the necessary plans.

I have, &c.,

SIDNEY WILLIAMS.

REPORTS OF PRINCIPALS

OF

BOARDING AND INDUSTRIAL SCHOOLS

PROVINCE OF ONTARIO,
ST. JOSEPH'S INDIAN HOME,
FORT WILLIAM, July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—We have the honour to submit our annual report of the St. Joseph's Home, for the year ended June 30, 1904.

Location.—The St. Joseph's Home on the Fort William reserve, is situated on the couth bank of the Kaministiquia river, midway between East and West Fort William and about four miles from the picturesque Mount McKay.

Land.—In connection with the Home there is only one acre of land. It is divided into playgrounds, one for boys and the other for the girls, vegetable garden and flower garden. The land, when attended to properly, produces very good vegetables. During the season, though short, every thing in the garden has grown very rapidly.

Buildings.—The Home is frame on a foundation of stone. There has been during the past year, an addition built on the rear, making the Home 95 x 45 feet instead of 70 x 45 feet, as formerly. The attic in the main building has been opened up and made into a very nice room and is now used as a dormitory for the girls. The basement includes the kitchen, three furnace-rooms, play-room, refectories and laundry. On the first floor is the reception-room, boys' dormitory, lavatory, boys' infirmary, bath-rooms and chapel. The second floor comprises the girls' play-room, lavatory, bath-rooms, infirmary, work-room, clothes closets and private rooms, while on the third floor are the dormitories and a water-tank.

Accommodation.—There is ample accommodation for about seventy-five pupils.

Attendance.—The attendance at this institution during the year was 68 pupils; 43 girls and 25 boys.

Class-room Work.—The pupils attend school twice each day, with the exception of some of the larger girls who assist in the laundry once a week. They also have their regular time for study. The progress of the pupils has been very satisfactory. The inspector's report last week was favourable.

Farm and Garden.—Our garden, though small, is well filled with the different kinds of vegetables. The boys are busily employed keeping down the weeds. The soil though sandy, with a little care, produces excellent vegetables.

Industries Taught.—Cooking, sewing, darning, knitting, laundry and general housekeeping are taught the girls. The boys are taught to be neat and clean in their own apartments, and to work in the vegetable garden and also attend to the flowers and lawn.

Moral and Religious Training.—Careful attention is paid to the morals and the religious training of the pupils; every effort being made to instil into their minds their duty towards God and man. The conduct of the pupils on the whole has been very good.

Health and Sanitation.—In March an epidemic of fever and pneumonia broke out among the children not only in the Home but in most of the families on the reserve, from which a great may deaths resulted; it lasted for about a month. We lost two of our staff from its effects combined with the overwork and anxiety with the children. Two girls and two boys were victims also. A great many of the other children were very sick, but have recovered through the aid of the best medical assistance. All are now well again and the Home has been thoroughly disinfected.

Water Supply.—We have an abundant supply of water distributed to the different apartments by means of pipes attached to a windmill.

Fire Protection.—There is kept in readiness seventy feet of hose, two fireman's axes and three Star glass-lined fire-extinguishers.

Heating and Lighting.—The institution is heated by means of three large hot-air furnaces, wood being the fuel used. The only means at present of lighting the Home are coal oil lamps.

Recreation.—When the weather permits, the children enjoy outdoor games in their respective playgrounds. The games enjoyed most are, baseball, football, hide and seek, croquet, fishing and boating in season.

General Remarks.—The department has very kindly granted $1,000, for which we are indeed most grateful, as we found it a great help towards lightening our heavy debt on the new addition. We have suffered a double loss to our little staff, by those two deaths. The Superior, Mother Francis, was the right one in the right place here, so kind and self-sacrificing under the greatest difficulties. The other sister too, we thought indispensable, but God's holy will be done. Many thanks are due the pastor of the mission for the great generosity in supplying the Home with all the milk and vegetables used and many other things, free of charge, which is no small item.

I have, &c.,

SISTERS OF ST. JOSEPH,

PROVINCE OF ONTARIO,
MOHAWK INSTITUTE,
BRANTFORD, August 11, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to transmit herewith a report on the Mohawk Institute for the year ended June 30, 1904.

This institute was established by 'The Corporation for Popagating the Gospel in New England,' briefly 'The New England Company,' in the year 1831.

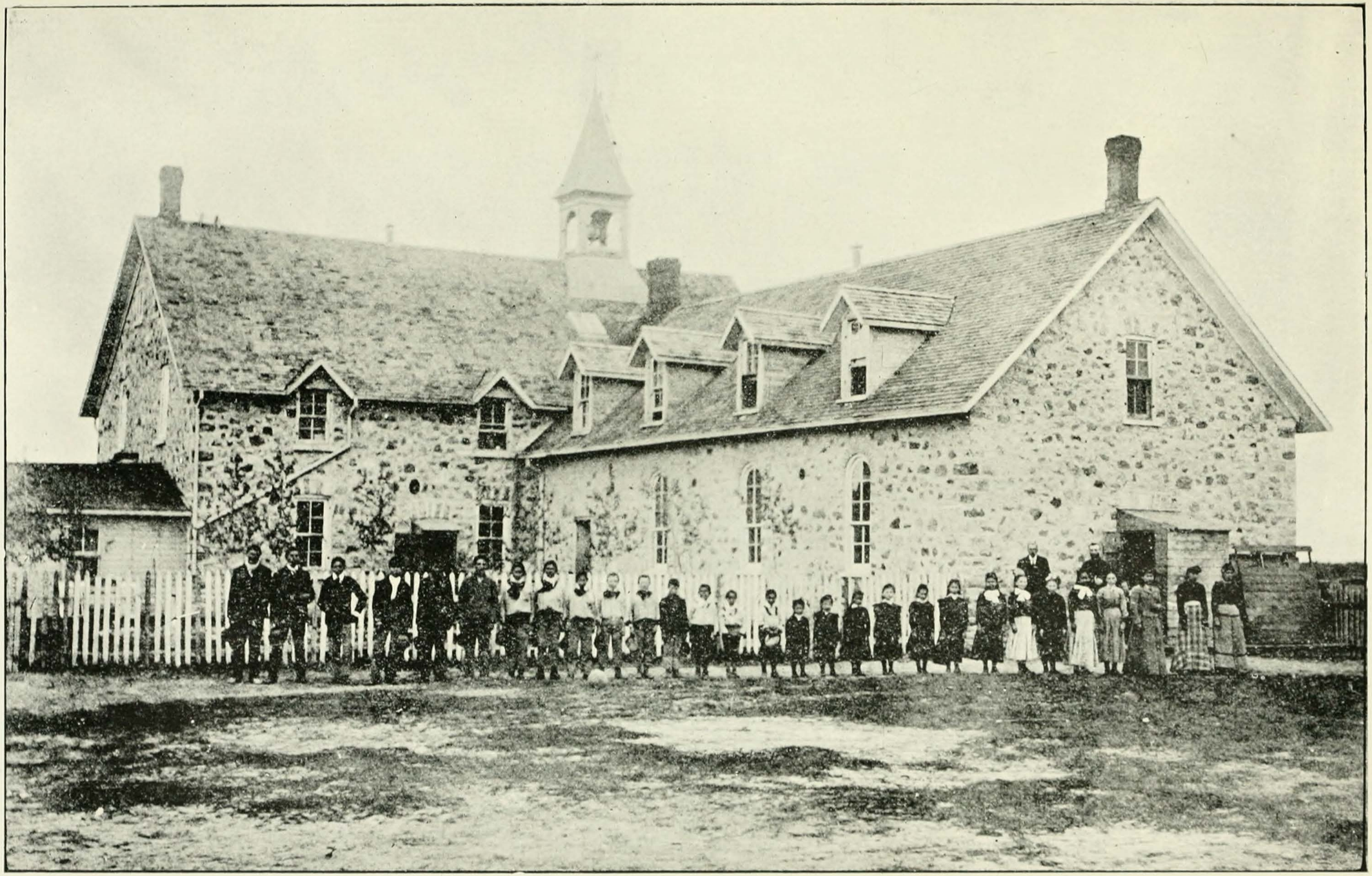
Land.—The land comprises three hundred and ninety acres, as follows : Lot No. 5 Eagles Nest, township of Brantford, ten acres; Crown grant (on this are the buildings) and one hundred and ninety-four acres by license of occupation; Mohawk Glebe lot, city, one hundred and eighty-six acres, rented.

Buildings.—The main building, 152 x 60 feet, is nearing completion. The boys' play-house, 74 x 20 feet, laundry, 30 x 20 3 feet, dairy, 18 x 13 feet, have been rebuilt, the former is a two and a half story building, basement of brick, at present occupied by the boys as a temporary home. The Mohawk parsonage, some distance from the institution proper, has temporary additions made to it for the accommodation of the girls.

New Buildings.—Barn, 97 x 35, but with brick basement containing stabling for thirty-five cows ; root-house and milk separating room ; cement silo, 30 x 16 feet; hog-pen, 72 x 30 feet; cement walls, metal roof and an ice-house, 18 x 14 feet.

Accommodation.—Accommodation has been provided in the new gymnasium for forty boys and in temporary buildings attached to the Mohawk parsonage for forty-three girls.

Attendance.—The returns for the quarter ended June 30, 1904, show an attendance of thirty-nine boys and forty girls, classified as follows :—



Muscowequan's Boarding School, Touchwood Hills, Assa. [305]

	Pupils.
Standard II	5
" III	22
" IV	13
" V	23
" VI	16
Total	79

The average attendance for the year was eighty-one. No new pupils have been admitted since April 19, 1903, when the institution was destroyed by fire.

Class-room Work.—The class-room work covers the full course of the public schools of Ontario. The progress has been satisfactory under the circumstances. One pupil passed the 'entrance' examination last month, another has been attending the business college in the city for eight months, taking a stenographer's course. She has not yet tried for her diploma.

The school hours are from 8.30 to 12 a.m., and from 1.30 to 4 p.m. in summer, and in winter from 8.45 to 12 a.m., and from 1.30 to 4 p.m., and from 7 to 8 p.m.

All pupils in standards IV, V and VI have private study from 8.30 to 9.30 p.m.

Pupils form two divisions 'A' and 'B.' One week 'A' division attends school in the morning, and 'B' division in the afternoon; the next week the order is reversed.

The pupils in standards I and II are in school full time throughout the year.

Farm and Garden.—This department though suffering a great loss in produce, live stock and implements, shows a favourable balance of $583.82 besides doing work of clearing up the ruins and re-building to the extent of $1,000 or more. Products supplied to the Mohawk Institution, $1,270.23; cash sales, $3,271.18.

Industries Taught.—*Carpentry and Painting.*—Under instructions the boys do all the work for the institution and farm. The carpenter and his boys were employed in the erection of temporary and permanent buildings. The farm supplied gravel and sand and the boys mixed all the cement in the construction of the new barn, silo, and pig-pen, besides assisting in all the carpentry work.

Farming, &c.—Farming, gardening and the care of greenhouses form the principal occupation of the boys and include the management of a dairy of over thirty cows and the raising of pigs, also the cultivation of plants and flowers for market.

Girls' Work.—The girls are trained for domestic work, including sewing, knitting, dressmaking, cooking, baking, laundrying and butter-making. They make all their own clothing, also that of the boys with the exception of the best tweed uniform, an issue of which is purchased every other year.

Moral and Religious Training.—Morning and evening prayers are conducted for the whole school daily and divine service at the Mohawk church at 11 a.m. on Sundays. Religious instruction is given daily in the schools and on Sunday from 9 to 10 a.m., 2.30 to 3.30 p.m. and 7 to 8 p.m.

The boys are organized as a company of cadets, divided into four sections under senior boys who are responsible for the cleanliness and order of their respective sections. Four section monitresses exercise similar supervision over the girls.

Health and Sanitation.—The sanitary condition of the boys' department is excellent; that at the girls' home is the best that can be arranged in temporary quarters.

The health of the pupils throughout the year has been very good, no serious illness or death has occurred.

Water Supply.—For the boys' department, water is pumped by means of a windmill from a well into tanks.

The girls in their temporary quarters, pump the water required from a well.

Fire Protection.—Both departments are furnished with fire-extinguishers.

Heating and Lighting.—The boys have a coal furnace in their play-house. The Mohawk parsonage was heated by coal-stoves and both departments are lighted with electricity.

Recreation.—The recreation hours are one hour at noon, two hours in the evening in summer and one hour in the winter, and for school divisions throughout the year from 4 to 5 p.m.; also one half holiday each week.

There is no school from July 16 to August 21. During this time the teachers take their vacation, each pupil has half a day holiday, and the industrial work of the institution goes on as usual.

The boys are furnished in their playground with swings and horizontal bars, they also have a field where they play cricket, baseball and football. The girls are provided with swings, croquet, balls, skipping ropes, &c. Those who prefer to read are furnished with magazines and books from the school library and the boys have the daily newspapers sent to their reading-room.

I have, &c.,

R. ASHTON,

Superintendent.

PROVINCE OF ONTARIO,
MOUNT ELGIN INDUSTRIAL INSTITUTE,
MUNCEY, August 26, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to transmit herewith a report on the Mount Elgin industrial institute for the year ended June 30, 1904.

Location.—The Mount Elgin industrial institute is very picturesquely situated on the west bank of the Thames river in the township of Caradoc and county of Middlesex, Ontario. The farm connected therewith consists of two hundred and twenty-five acres. Falling gently to the river it is therefore easily drained. The soil is rich and well adapted for agricultural purposes. Originally designed for forty pupils, it is found to be quite inadequate for the one hundred pupils now in attendance. To correct this, lands are leased from the Chippewa and Oneida bands.

Buildings.—The buildings are as follows :—Main building four stories, erected in 1895, the old building erected in 1847, refitted in 1897, and known at present as the annex, boys' recreation hall, laundry, barns, stables, carpenter and shoe-shops. The work of repairs to pig-pens, stock and straw barns referred to in our last report has been of great advantage during the year.

Grounds.—Extensive playgrounds lie to the south, north and west of the main building and overlook the winding Thames northward, presenting one of the most beautiful pastoral scenes in the province.

Accommodation.—Ample accommodation is provided for from one hundred and fifteen to one hundred and twenty pupils, together with a staff of twelve officers.

Attendance.—The number of pupils authorized by the department for this institute is one hundred. The attendance last year averaged one hundred and three.

Class-room Work.—Each pupil receives four days' instruction in the class-room and two days' in the industrial departments each week. Care is had to give the pupils the advantage of a graded school. Three pupils successfully passed the high school entrance and one the public school leaving at the examinations held in June and

July last. School-rooms, lavatories, dormitories, playgrounds, &c., are under the continued oversight and inspection of the teachers and matron.

Farm and Garden.—The farm is composed as stated above of two hundred and twenty-five acres. The soil is rich, well drained, and furnishes from year to year, except in special cases, supplies of flour, meats, vegetables and dairy products for use of pupils and staff. Being limited to two hundred and twenty-five acres, it fails to afford but a meagre quantity of pasturage. Dependence upon rental of adjoining lands alone meets this serious defect.

Industrial Work.—The boys are taught all branches of agricultural work, such as ploughing, harrowing, tile draining, planting and management of roots and corn, harvesting, &c., the rearing, training, &c., of horses and the management of stock in general. The girls are trained in domestic work, including baking, cooking, sewing, knitting, darning, dressmaking and laundry work.

Moral and Religious Training.—The moral and religious training of the pupils is kept constantly before the classes by the teachers in charge. Daily study of the Bible at morning and evening prayers is conducted by the principal. In charge of an officer all pupils attend public service each Sabbath morning. Sabbath school is held in the chapel each Sabbath afternoon, and a Bible study and a song service in the same place at 7.30 each Sabbath evening.

Health of Pupils.—The general health of the pupils during the year has been good. One pupil was dismissed suffering from that dread disease consumption. One boy died of spinal menengitis after a sickness of eight days.

Water Supply.—The water-supply, while abundant, is not of good quality, and is one of the problems demanding serious attention.

Fire Protection.—Chemical extinguishers and buckets filled with water are kept in the corridors of the main building. Though two small tanks are situated in the garret of the main building, they are not infrequently empty, depending, as they are, upon the continued workings of the windmill furnishing the pumping power. An effort is being made to remedy this by way of installing an hydraulic ram. The annex, laundry and extensive barns are entirely without protection.

Heating.—The heating of the main building and the annex is furnished by three coal-burning furnaces. In the annex recourse is had to wood stoves in extremely cold weather, the furnace not having sufficient power.

General Remarks.—Ready employment is found by pupils (both boys and girls) going out from this institute, the eagerness with which they are sought for bearing testimony to the efficiency of their training.

I have, &c.,

T. T. GEORGE,
Principal.

PROVINCE OF ONTARIO,
THE SHINGWAUK AND WAWANOSH HOMES,
SAULT STE. MARIE, July 22, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the annual report of the Shingwauk and Wawanosh Homes for the fiscal year ended June 30, 1904.

Location.—The Shingwauk and Wawanosh Homes are situated on the bank of the St. Mary's river, one and one-half miles east of, and within, the town limits of Sault Ste. Marie, in the province of Ontario.

Land.—The area of land in connection therewith is ninety-three acres, comprising park lots 1 and 2, in the Tarentorus township, which was acquired by purchase, and is held in trust by His Lordship the Bishop of Algoma. Originally forest, the land is now, with the exception of a few acres, cleared.

The soil is extremely light and rocky, and is best adapted for grazing purposes. A large portion of it is quite useless for farming purposes.

Buildings.—The buildings are admirably situated, fronting the river, and consist of:—

1. The Shingwauk and Wawanosh Homes, main block, 160 x 37 feet, with various wings and principal's residence adjoining, in which are the offices of the institution, main dining-hall, kitchens, visitors' entrance, staff-rooms, furnace-rooms, lavatories and dormitories.

2. A litle to the east, and almost in line with the main block, stands a large two-story frame building, 60 x 30 feet, the ground floor of which is used as a drill-hall and play-room for the boys. On the upper floor the senior school is held.

3. Some sixty yards from this building, standing due east and west, is the Bishop Fauquier memorial chapel, erected in 1883, with funds subscribed anonymously in England and Canada, as a tangible, enduring and useful memorial to Algoma's first revered bishop.

4. Hospital, with attendant's cottage adjoining.

5. Farmer's cottage and laundry, 20 x 40 feet.

6. Carpenter's cottage.

7. Factory.

8. Shoe-shop, barns, stables and various minor buildings.

Since my last report the following repairs and improvements have been effected, namely : repairs to roof of main building ; new floor in laundry; painting part of the interior of the main building; connecting girls' lavatories with hot water; making bob-sleighs for farm; six fire ladders; wagon box; setting up new pump and engine in factory; laying new roof and floors and stalls in horse-stable and same in cow-stables; fencing girls' yard; glazing and general minor repairs.

Accommodation.—There is accommodation for one hundred pupils—sixty boys and forty girls—and twelve members of staff.

Attendance.—The number of pupils enrolled at the beginning of the year was fifty-seven—forty-one boys and sixteen girls. Seven girls and two boys were admitted, five boys and two girls were discharged, and two boys died of comsumption, thus leaving in residence at this date thirty-six boys and twenty-one girls, of whom nineteen are motherless, nine fatherless and seventeen have neither father nor mother. The average attendance for the year was fifty-six.

Class-room Work.—The school is divided into senior and junior divisions under the tuition of two teachers in separate buildings.

The curriculum followed is similar to that of the public schools of Ontario.

Both schools are equipped with automatic desks, large wall maps, globes and necessary school material, including kindergarten material for the juniors.

The hours of attendance are from 8.30 to 12 a.m. and from 1.30 to 5 p.m, Wednesdays and Saturdays excepted. Getting through the junior school is always a tedious and lengthy process, due largely to the pupils' lack of English. Once through, however, progress is much more rapid, and compares favourably with the public schools. Writing and drawing especially are natural talents with our boys and girls, and are always much commended by our inspectors.

Good progress has been made during the year. Twenty boys and six girls qualified for promotion into higher classes.

Industries Taught.—The boys are taught carpentry and farming. The girls sewing, laundry and general domestic work.

The carpenter-shop, or factory, is a detached building, 24 x 40 feet, situated some two hundred yards from the main building. Every branch of carpentry work is taught by an experienced foreman in charge. Our boys take readily to the work and soon become adept. Five boys were apprenticed during the year, to whom, and their instructor much credit is due for the efficient manner in which the repairs and improvements previously referred to in this report were carried out.

In connection with this branch of the work I desire to place on record my gratitude to the department for a much needed supply of carpenter's tools, together with a 12 horse-power gasoline engine, which latter, recently installed, supplies an economical and satisfactory motive power for the operation of our machinery and for pumping.

The farm, consisting of 40 acres, is worked by a practical farmer in charge, assisted by a number of boys.

The stock consists of three horses, one bull, four cows, four yearlings, four calves and four pigs.

The principal crops raised are hay, roots and vegetables. The soil is light and rocky and rarely yields sufficient produce for institution requirements.

An additional fifty acres of good first-class farming land adjacent to the schools would be an invaluable boon.

In the winter, the farmer and his boys are fully occupied in teaming, chopping and sawing wood and the care and feeding of the stock.

A great drawback is the lack of wood for fuel on the Shingwauk property, a want increasingly felt each year in view of the difficulty experienced in buying permits to cut on other lands at a reasonable figure and in the vicinity of the institution.

Moral and Religious Training.—The religious training is that of the Church of England. Pupils and staff attend the Shingwauk memorial chapel or St. Luke's pro-cathedral in town, morning and evening prayers are held in the school-room every day, and Sunday school on Sunday afternoons.

Methods of punishment are fines, impositions and keeping the pupil in to work on half holidays. Corporal punishment is administered in cases of gross disobedience only, and as a last resort.

Health and Sanitation.—While I have to report the death of two boys at Shingwauk from tuberculosis, the health of the pupils generally was satisfactory. We have been freer from minor sicknesses than for many years past, especially was this the case during the past winter notwithstanding its severity.

Drains are kept clean, lime and other disinfectants are used and all large refuse is placed in barrels and carted to the farm daily.

Water Supply.—An inexhaustible supply is obtained from the St. Mary's river by pumping into large tanks placed in the roofs of the main buildings and laundry.

Fire Protection.—Hydrants are placed at convenient distances outside of the main buildings and on each flat of the interior, to which one hundred feet of hose kept ready for use in case of fire, can be readily attached.

The main buildings are also supplied with chemical fire-engines and fireman's axes.

Heat and Lighting.—The main building is heated throughout by a hot-water system. The system works well and is satisfactory. Wood stoves are used for heating all detached buildings, including the chapel.

Coal oil lamps are used throughout the buildings for lighting.

Recreation.—Both schools have playgrounds ; suitable games and gymnastic appliances are provided.

Indoor games, books and magazines are provided for the winter.

General Remarks.—The fifty-seven children at present enrolled are representatives of the Ojibway and Delaware tribes. They range from six to nineteen years in age ; some are but beginning their career in the homes, while others well on in the 4th book are rapidly nearing the termination of their training, and will soon be qualified to earn their own living.

They are bright, teachable children, painstaking and plodding in their work, and speaking generally, have of late years shown an increasing appreciation of the advantages offered them, especially is this noticeable on the part of those who rely on the homes to eventually place them out in the world.

I have, &c.,

G. LEY KING,
Principal.

PROVINCE OF ONTARIO,
WIKWEMIKONG INDUSTRIAL SCHOOL,
WIKWEMIKONG, July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the annual report of the Wikwemikong industrial school for the year ended June 30, 1904.

Location.—This institution is situated on the unceded portion of Manitoulin island, ten miles north of the Manitowaning agency, in the village of Wikwemikong, on the west shore of Smith bay. This location is quite undesirable, our grounds being surrounded and cut up by streets and Indians houses, we have no privacy, and are unable to enlarge our too narrow playgrounds.

Land.—About two hundred acres of land were granted by the Indians for the use of the missionaries, and are held in trust by them, for the combined purposes of the mission and the school. It is stony but otherwise fertile land, half of which is under cultivation ; the other half being used as pasture.

Buildings.—The boys and girls are accommodated in two separate institutions about two hundred yards apart, which are managed by two separate staffs, under the supervision of the principal.

The boys have their study and class-rooms, dining-room, wardrobe and play-hall in a two-story frame building, 50 x 100 feet. The rooms for the sick, the kitchen, and the dormitory are in the missionaries' residence, a three-story stone building, 110 x 60 feet, where also the staff have their quarters. The dormitory is particularly healthy, being 108 x 40 feet, with a ceiling 17 feet high, and is well lighted and ventilated. There are in connection with it, baths and water-closets fitted up according to the most approved method.

The girls and their staff are housed in two, three-story frame buildings connected by a passage-way, which are 108 x 50 feet, and 50 x 35 feet, respectively, and situated further up the hill. Their class-rooms, recreation-hall, and dormitories are now spacious and airy, since the completion of the addition mentioned in my last report. A few yards to the south stand a two-story frame structure, 40 x 50 feet, used for a wash-room and its various appurtenances, also for a store-room, bakery, &c.

Towards the shore of the bay is located the blacksmith, paint and carpenter-shops, combined in one building. The latter is provided with a gasoline engine, and the most necessary wood-working machinery. Closer to the shore is a little saw and planing mill. The shoemaker-shop and the bakery for the boys' school are located in an old mission stone building, where also is a music-room, set apart especially for the use of the brass band, composed of former pupils of the school.

There are yet to be mentioned in connection with the farm, three barns, each with a spacious stable in its basement, piggeries, henneries, sheds for agricultural implements and various carriages, wood-sheds, and ice-house.

Accommodation.—There is ample room to accommodate eighty boys, and as many girls with their respective staffs. However, with some remodelling of the boys' school, accommodation could be provided for one hundred boys.

Attendance.—The number of pupils enrolled during the year has been one hundred and thirty-six, of which seventy-seven were boys and fifty-nine girls, and the average attendance has been one hundred and twenty-six, the difference between the figures being accounted for by arrivals and departures during the year. The attendance of day pupils from the village has much improved with regard to the girls, but the boys have not been so regular.

Class-room Work.—This is governed by the official programme of studies for Indian schools. The time appointed for it, is from 9 to 11.45 a.m. and 1.30 p.m. to 4, with a short recess in the middle of each session. There is also another half hour of study at 7.30 p.m. for private reading, letter-writing, vocal music, &c. All the pupils were present in class the full time, except some of the older girls who spent a part of the time allotted to class-work in sewing. The pupils are about equally divided into four sections, two for the boys and two for the girls, and are under the tuition of four different teachers ; pupils of the lower grades being taught in the same room in connection with the day pupils.

The pupils are graded as follows :—

	Pupils.
Standard I	25
" II	41
" III	23
" IV	23
" V	12

The pupils generally, especially the more advanced boys, have made very good progress in the English language, and in arithmetic, and many would do credit to any public school in the country.

Farm and Garden.—The farm described above, is managed with a view of supplying the institution with meat, milk and butter. It is well stocked with cattle, sheep, horses, hogs, and chickens. The work is done partly by the boys, with the help of Indian workmen, under the guidance of an experienced farmer. About one acre is laid out as a kitchen garden. This department is quite profitable, and enables us partly to supplement the annual grant, which hardly covers two-thirds of our expenses.

Industries Taught.—The main industry taught to the boys is farming, because it is the best and almost the only means they will have of earning their living when out of school; but attention is also given to woodworking, blacksmithing, and shoemaking. Twelve of the older boys were especially applied to farming, four to woodworking, and two to shoemaking. Besides this special training, all the pupils are employed about two hours daily each, according to sex and ability, at various kinds of labour, such as sweeping, scrubbing, sawing and splitting fire-wood, dairying, gardening, feeding stock, helping in the kitchen, and on the farm. The laundrying is done at the girls' school, with the help of Indian women. The more advanced girls receive special training in sewing, knitting and dressmaking. The pupils generally take well to these kinds of labour.

Moral and Religious Training.—Particular care is given to this most important part of education. Special religious instruction is given the pupils almost daily, and whenever there is an opportunity they are reminded by advice, exhortation or reproof, to manifest in their behaviour the religious and moral principles they have learned. A weekly report on each pupil from all the officers of the institution, made public and sanctioned by rewards or reprimands, is an effective means of maintaining good morals and order. The pupils attend all the religious services of the parish church.

Health and Sanitation.—The sanitary condition of the school is all that can be desired. With the exception of a few occasional ailments, the general health of the pupils has been very good throughout the year.

Water Supply.—A windmill, and a tank holding fifteen thousand gallons, supply excellent water from the Georgian bay, for all purposes; galvanized iron pipes conducting it to all parts of the institution.

Fire Protection.—Hydrants in connection with the tank and supplied with two inch hose on every floor of the main buildings, constitute our principal protection against fire, besides some fire-extinguishers and fireman's axes.

Heating and Lighting.—Both schools are heated by box stoves and are kept comfortable. The boys' dormitory, however, and the staff's quarters, are heated by hot water in connection with the missionaries' residence. Light is furnished by kerosene lamps, except in the girls' school, where an acetylene plant has been installed.

Recreation.—Two hours daily besides Saturday afternoons, are given exclusively to recreation. The first Tuesday of each month is a free day for every pupil who has given satisfaction throughout the month. Both schools have playgrounds, although rather small, furnished with suitable games and gymnastic appliances, and play-halls for bad weather and evening recreations in winter.

General Remarks.—I may say confidently that the school is contributing largely to the elevation of the moral tone, the development of habits of thrift and industry, the enlightenment of mind generally, and the improvement of physique among our Indians. Our present pupils appreciate more their training and rise to a higher level than our former ones. They take more interest in reading, both books and newspapers, and develop to a certain extent an intellectual life.

I have, &c.,

J. PAQUIN, S.J.,

Principal.

PROVINCE OF ONTARIO,
CECILIA JEFFREY BOARDING SCHOOL,
RAT PORTAGE P.O., September 14, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Location.—The Cecilia Jeffrey school is situated on the west side of Shoal lake, an arm of the Lake of the Woods, in Ontario, near the boundary of Manitoba, and just east of Shoal Lake reserve, No. 40. This school is reached by water from Rat Portage or Keewatin, being about forty-five miles from either in a southwest direction.

Land.—A peninsula, containing two hundred and ten acres, registered as D 492, between Rice bay and Shoal lake, was secured by the Presbyterian Foreign Mission Committee from the Ontario government. Several rocky ridges run across the land; but a large portion of it, though timbered, is excellent soil, and will be very suitable for farming or gardening. About seven and one-quarter acres have been cleared.

Buildings.—There is a building, 39 x 66 feet, of which two stories frames and the basement of stone. The latter contains two furnace-rooms, laundry, boys' and girls' bath-rooms, four store-rooms, and boys' and girls' recreation-rooms. The main floor has the school-room, book-room, boys' entrance and hat-room, children's dining-room, office, hall, parlour, staff dining-room and kitchen. The second floor has two boys' dormitories, four staff bed-rooms, staff bath-room and two girls' dormitories. There

is a clothes closet off each, staff bed-room and dormitory. The large attic is used for a store-room and for water-supply tank. There are two stables, one 12 x 20 feet, and the other 24 x 36 feet, in course of erection.

Accommodation.—There are four staff bed-rooms, and beds for twenty-five scholars although room for forty.

Attendance.—There are twenty-two children on the roll, thirteen boys and nine girls. The average attendance for the year was sixteen and four-tenths. This is an increase of five over last year. The attendance was better towards the end of the year.

Class-room Work.—The smaller children are in the school-room full time; the large ones at least half of each day, but often more. The subjects taught are: reading, writing, arithmetic, geography, drawing, music, calisthenics and general knowledge. The progress made has been fair. The conduct is good.

Farm and Garden.—There are two acres under cultivation in four vegetable gardens. Two small islands, formerly cleared, are utilized for potatoes. Two and a half acres are seeded down with clover and timothy. The windmill is used with hose to water the garden, which is beside the school. About seven and one-quarter acres are cleared and one and three-quarter acres are fenced. The live stock consists of two horses, two cows, two yearlings, two calves and some hens.

Industries Taught.—The larger boys work out half days with the principal or farm-helper, building, clearing land, fencing, hauling wood or hay and doing other farm work. The girls are taught housework, washing, ironing, mending, cooking and baking.

Moral and Religious Training.—The scholars are taught to be obedient, truthful, honest and industrious. Their moral training is carefully looked after. They commit to memory Scripture verses. There is daily Scripture reading, singing of hymns and prayers; and on Sunday, Sabbath school and church services.

Health and Sanitation.—The health of the pupils has been good. The sanitary arrangements are very good. The sewer empties into Rice bay, west of the building, while the intake of the water-pipes is on the east side from Shoal lake. The water is good. All the rooms are well ventilated and have high ceilings. The plumbing connections from baths, closet, basins and laundry-tubs, have all been properly made at much expense.

Water Supply.—A windmill pumps the lake water into a tank in the attic, from which it gravitates in pipes to all parts of the building where needed. Hot water also is supplied through the range boiler. A large tank in the laundry holds the rain water, which can be drawn off in any part of the basement.

Fire Protection.—The windmill pump, the two tanks with iron pipe connections and one hundred and seventy feet of hose, with hydrants on each floor, give excellent fire-protection. Ladders, axes, water in pails and other empty pails, are kept in convenient places in case of fire. The scholars are drilled in getting out of the dormitories quickly, and in an orderly manner. They are also taught how to use the hose.

Heating and Lighting.—Two hot-air furnaces, cook stove and laundry stove, heat every part of the building comfortably. Light is supplied by coal-oil lamps.

Recreation.—In summer, much time is devoted to football, baseball, boating, swimming and other games. In winter there is coasting, skating and sliding, with indoor games in the evenings.

General Remarks.—There have been several changes in the staff. The missionary has been appointed principal, and the former assistant matron is now matron, in place of the principal and matron leaving. A female teacher and assistant matron have arrived and commenced work. A graduate of the Regina industrial school is farmer for the summer months.

I have, &c.,

AUSTIN G. McKITRICK,

Principal.

MANITOBA SUPERINTENDENCY,
KEEWATIN TERRITORY,
NORWAY HOUSE BOARDING SCHOOL,
NORWAY HOUSE, *via* WEST SELKIRK, MAN., August 20, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the fourth annual report of the Norway House boarding school for the year ended June 30, 1904.

Location.—The school is situated on the Norway House reserve at Rossville village. It contains a nice view of the Little Playgreen lake. We are about twenty-five miles down the Nelson river from the foot of Lake Winnipeg in the Territory of Keewatin.

Land.—The school does not own any land at present, but the Indian council proposed to set apart 640 acres for school purposes. Part of this—about one acre and a half—is being used as a garden at present. It still belongs to the Indians. There is only a very small part of the contemplated grant that can be farmed. The rest is rocks and muskegs.

Buildings.—There are nine buildings in connection with the school.

(a) The main building is frame, built on a stone foundation. It has sheeting, building-paper and siding on outside of studding, and sheeting, building-paper and ceiling on inside. It is painted inside and out. It contains the office, principal's rooms, two play-rooms, a dining-room, kitchen, store-room, sewing-room, two dormitories and four private rooms. This building is to be enlarged this fall, the addition to include three isolation-rooms and other rooms for the use of the school.

(b) School-house. A new building, used as school-room only. Its dimension are 32:6 x 22:6.

(c) One log storehouse. During the year this building has been sheeted with ship-lap.

(d) One small log stable, not in use.

(e) One large and one small closet.

(f) One root-house, which has been roofed during the year.

(g) A new log barn, containing stable, hay-mow, and loft, which was mentioned as in course of erection in last year's report, has been completed. There is room for twelve head of cattle. Its dimensions are 28 x 30 feet.

(h) A new wood-shed, 16 x 48 feet.

(i) A skating rink, 32 x 140 feet. This was built last winter and taken down in the spring. It is our intention to rebuild it again this winter.

A sidewalk extends in one direction towards the barn, and in the other direction past the reserve day school to our new school-house. It also is built around the main building. We have also a strong picket fence surrounding the school and the girls' playground and a small vegetable garden, one fence inclosing all. There is a substantial wharf for the use of the steam-tug in landing supplies. A large boat-house is in course of erection.

Accommodation.—There is ample room for sixty children and five of a staff.

Attendance.—Throughout the year the number of pupils in attendance at the school has averaged forty-six, four below the number for which a grant is allowed by the government. Detention of pupils by parents caused some trouble. Several pupils were allowed out on sick leave. Truancy is on the decrease.

Class-room Work.—The regular course prescribed by the department has been followed and steady progress has marked the work of the year in all the branches taken up. During the year the matron, who is a trained nurse, has given lectures to the girls on the subjects of health and cleanliness.

Farm and Garden.—By referring to the second heading of this report it will be seen that for some time at least farming is out of the question. We have a small garden in which the ordinary vegetables can be grown quite easily. We have this year potatoes, pease, turnips, carrots, beets, celery, cabbages, beans, and an abundance of fine lettuce and radishes.

Industries Taught.—Cooking, sewing, laundry, and general housekeeping are taught the girls. The boys are, on a small scale, taught gardening, the care of cattle, and carpentering.

Moral and Religious Training.—This is supplied by the personal efforts of all the staff. We also have morning and evening prayers, at which we read the Bible and explain and enforce it as well as we can ; sing suitable hymns and engage in prayer. Every Sunday evening we conduct a Sunday school at which the regular International lessons are studied.

Our school is within two hundred yards of the Methodist Mission church, in which divine service is conducted twice and occasionally three times every Sunday. The children are taken regularly to these services.

Health and Sanitation.—The general health of the pupils has been a great improvement on that of last year. No virulent epidemics have swept through the reserve. The Great White Plague still lays his grim hand heavily upon the people, and we have lost five children through his untimely ravages.

As regards sanitation, everything that circumstances will admit is being done to keep the place in a healthy condition, including a drain, force pump to remove water from the cellars, and the securing of a supply of good water from the outer end of the wharf.

Water Supply.—We have abundance of good water in Little Playgreen lake, about one hundred yards from the school.

Fire Protection.—We have received one fire-extinguisher from the department. There are no fire-escapes. We have one barrel of water in each dormitory, with a pail and a number of pitchers on hand. Then in the kitchen are three barrels, all of which are filled twice a day, and from eight to a dozen pails standing close at hand. Axes are always on hand in the school.

Heating and Lighting.—The heating is done by means of two wood furnaces and quite a number of stoves. Some of the rooms are not connected with the furnaces and others do not receive sufficient heat from the present arrangement of pipes, so we supplement with stoves. The furnace pipes were not properly proportioned to the amount of work required when they were put in.

The lighting is done entirely by lamps burning kerosene oil.

Recreation.—The children all do some manual work in the way of chores for about one hour before school. They have the regular recess from work and one and a half hours at noon, during which they play out of doors at football, tag, skipping, swinging and many other games. From 4 p.m. to 5.30 p.m. they all, except the little girls, work. Then after supper they amuse themselves for about one hour before being called to prayers. In the winter very beneficial exercise is dervied from the skating rink, where hockey and tag are enjoyed by all.

I have, &c.,

J. A. G. LOUSLEY,

Principal.

PROVINCE OF MANITOBA,
PINE CREEK BOARDING SCHOOL,
WINNIPEGOSIS P.O., July 2, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to forward my annual report for the year ended June 30, 1904.

Location.—This school is situated on the west side of Lake Winnipegosis, at the mouth of Pine creek.

Land.—There is one hundred and sixty acres of land in connection with the school, which belongs to the Roman Catholic mission.

Buildings.—These consist of a large stone building, which is divided into the kitchen, refectory, store-room, dairy, cellar, class-room, sewing-room, recreation-halls, infirmaries, dormitories and rooms for the staff. There are also stables, carpenter-shop, ice-house and a shed for storing implements.

Attendance.—The attendance during the year has been very good.

Class-room Work.—As a general rule the children are doing well.

Farm and Garden.—About eight acres are under cultivation. The crop has been very good.

Industries Taught.—The boys are taught light housework, the care of cattle and horses and farming. The girls are instructed in sewing, knitting, cooking, dairying and the care of poultry.

Moral and Religious Training.—Each day one hour is devoted to moral and religious training.

Health and Sanitation.—The children are all in a good state of health.

Water Supply.—A pump run by a gasolene engine draws the water required for school purposes from the river.

Fire Protection.—The only fire-protection in the buildings is two water tanks situated in the attic and connected by hose with the different floors, and in addition to this there are two fire-extinguishers on hand.

Heating and Lighting.—The school is heated by steam and coal oil is used for lighting purposes.

Recreation.—The girls indulge in various games. The boys enjoy playing football and baseball.

I have, &c.,
W. CHAUMONT,
Principal.

PROVINCE OF MANITOBA,
PORTAGE LA PRAIRIE BOARDING SCHOOL,
PORTAGE LA PRAIRIE, July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to forward my annual report for the year ended June 30, 1904.

Location.—This school, which is not situated on a reserve, is about a quarter of a mile east of the town of Portage la Prairie. The post office address is Portage la Prairie.

Land.—There are two acres of land in connection with the school. This land is within the corporation of the town of Portage la Prairie, and is owned by the Presbyterian Church. It is very suitable for garden purposes.

Buildings.—The building is of frame, on a stone foundation, with a school-room adjoining. The three kitchen floors were oiled twice during the year and the remaining floors were painted. The dormitories were kalsomined and the kitchen walls were painted.

Accommodation.—The school can easily accommodate forty children with a staff of three.

Attendance.—The attendance has been very satisfactory in every way. We had an average of twenty-four pupils during the year.

Class-room Work.—As nearly all the children are under twelve years of age, they are not in advanced standards, but they have made good progress.

The pupils are graded as follows :—

	Pupils.
Standard I.	5
" II.	0
" III.	12
" IV.	4
" V.	3

The children speak English only at school, and all express themselves much better in English than in Sioux. The older children read the daily papers and are quite as fond of reading books as white children of the same age.

Farm and Garden.—One acre is used for garden; the other acre is divided into two playgrounds, one for the boys and one for the girls. Each child is given some vegetable such as carrots, beets, pease, cabbage, &c., for which he is held responsible. They take a very keen interest in their work, and enjoy it better than any amusement the school can afford them. Each tries to surpass the other in growing the best vegetables. This year we have twenty different kinds of vegetables, besides potatoes.

Industries Taught.—In the house the girls have been carefully trained in habits of neatness and industry in the kitchen and laundry ; also in sewing and general housework. The boys are employed in cutting wood, gardening, carpentry and any other work which they are able to do.

Moral and Religious Training.—Thirty minutes in the morning and the same in the evening is devoted to religious instruction. They attend the services and Sunday school of Knox church. The conduct of the children has been good and corporal punishment is not necessary.

Health and Sanitation.—The health of the children, on the whole, has been good. We were quarantined for thirty days, owing to an outbreak of measles, but only one case developed. One child took typhoid fever and was removed to the general hospital of this town, where he received excellent treatment. The ventilation of the school is good.

Water Supply.—There is a good well, which is amply sufficient for the needs of the school. There is also a soft-water tank in the basement, which will hold twenty barrels. From this tank water is forced into the attic by means of a force pump.

Fire Protection.—There are a number of exits should fire occur. We have two chemical engines, one axe and six fire-buckets. Our proximity to the town, with a telephone in the building, strengthens our fire-protection, as we could make use of the town fire-brigade.

Heating and Lighting.—The school is heated by hot air, except the school-room, which is heated by a stove. The building is lighted throughout by electricity.

Recreation.—The girls have many games in summer and skating in winter. The boys have football, baseball, skating and other athletic sports. The larger girls and boys spend much of their spare time, playing lawn tennis, which they enjoy greatly.

I have, &c.,

W. A. HENDRY,

Principal.

MANITOBA SUPERINTENDENCY,
RAT PORTAGE BOARDING SCHOOL,
RAT PORTAGE, ONT., July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit herewith a report of the Rat Portage boarding school for the year ended June 30, 1904.

Location.—The school is situated south of the town of Rat Portage on the shores of the Lake of the Woods

Land.—There are fifty acres of land in connection with this school, the property of the Roman Catholic mission, much of the land is rock.

Buildings.—The school-buildings are of frame construction, with brick veneer. The main building is 36 x 30 feet, three stories high with an extension at the south end, 36 x 26 feet, two stories high. Besides there is a lean-to kitchen attached to the rear of the main building, 16 x 14 feet. The other buildings are: cottage, 20 x 16 feet, with lean-to, 14 x 12 feet, resting on stone foundation; it contains a hall and three rooms, and is the principal's residence; workshop, 22 x 16 feet, resting on stone foundation, storehouse and laundry (under one roof) 48 x 18 feet ; stable and carriage shed (under one roof) 46 x 18 feet; wood-shed, 20 x 12 feet; and log house, 18 x 14 feet, for the use of visiting Indians.

Accommodation.—The buildings contain accommodation for forty children.

Attendance.—The number on the roll is thirty ; during part of the year we had thirty-four children in attendance.

Class-room Work.—The course prescribed by the department is followed. The children are making rapid progress.

Farm and Garden.—Five acres of land are at present under cultivation and furnish ample vegetables for the supply of the whole school.

Industries Taught.—The boys are taught the art of preparing the soil, of planting and attending to plants ; while the girls are taught knitting, sewing, cooking, and housework in general.

Moral and Religious Training.—To this part of their education particular attention is paid. A certain time every day is devoted to Christian doctrine, and morning and evening prayers are said in the chapel.

Health and Sanitation.—The general health of the school has been good during the year. The sanitary conditions are good.

Water Supply.—The water is supplied from the lake.

Fire Protection.—Three fire-extinguishers are kept always ready for use. Ladders are at hand around the premises.

Heating.—The building is heated throughout by hot-air furnaces. There is a box-stove in the boys' hall.

Recreation.—One hour is allowed for recreation at noon, and the same in the evening. Skating and sleighing are the winter amusements ; boating is their favourite pastime during the summer season.

I have, &c.,

CHS. CAHILL, O.M.I.,

Principal.

PROVINCE OF MANITOBA,

BRANDON INDUSTRIAL SCHOOL,

BRANDON, July 1, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Location.—The Brandon industrial school is a non-reservation school, situated three miles northwest of the city of Brandon, about the centre of a beautiful hill that once formed the bank of the Assiniboine river. The view looking over the Experimental farm to the city of Brandon is hard to surpass in Manitoba.

Land.—The land consists of the east half of section 28, township 10, range 19, a total of 320 acres, which belongs to the school. About 220 acres lies in the beautiful valley of the Assiniboine, most of which is suitable for agricultural purposes.

Buildings.—The main building is three-story, brick veneered, with a frontage of 102 feet. The other buildings consist of the principal's residence, farmer's residence, gardener's residence, barn and stables, piggery, hennery, ice-house, and two root-houses.

Accommodation.—There is ample accommodation for 125 pupils and all the members of the staff.

Attendance.—The average attendance has been 108, and the attendance in the school-room and on duty has been good.

Class-room Work.—The half-day system is followed with quite a few exceptions, among the smaller pupils, who attend school all day, especially during the winter months. During the year excellent progress has been made under the programme authorized by the department. On Saturday mornings all the pupils are at work, while the afternoon is regarded as a half holiday, used as a preparation for the Sabbath.

The pupils are graded at present as follows:—

	Boys.	Girls.	Total.
Standard I.	16	19	35
" II.	9	5	14
" III.	8	18	26
" IV.	8	4	12
" V.	9	9	18
Totals	50	55	105

Farm and Garden.—We give special attention to these two departments, believing that the red man must obtain his livelihood from the soil and stock-raising. We have a garden of 4½ acres, including small fruits. We endeavour to teach in a practical way that the fruits, for which they roam the country, can be had in better quality with less labour at their own doors.

We have under cultivation 145 acres, with the following acreage : wheat, 26 acres; oats, 33 acres; barley, 6½ acres; corn, 5 acres; potatoes, 8¼ acres; roots, 5¼

acres; garden and small fruits, 4½ acres; summer fallow, 28 acres; meadow (native grass) 15 acres; brome grass, 13 acres. The remainder of 175 acres is uncultivated, and most of it is suitable for pasture.

Industries Taught.—The boys are taught farming, gardening, care of stock, carpenter-work, and such other work as will help them in their endeavour to solve the practical problems of after-life. The girls are taught cooking, laundry work, sewing and general housework. Thoroughness is insisted on in every department, quality always being worth more than quantity.

Moral and Religious Training.—Sabbath morning all the boys, and as many of the girls as can be taken, attend divine service in the city.

Sabbath school is held every Sunday afternoon, where all the members of the staff have each a class, and preaching service is conducted in the Institute every Sunday evening.

All the departments are closed on Saturday afternoons, and preparation is made for a proper observance of the Sabbath. On Sunday morning a clean child puts on clean clothes and clean boots (an object lesson—a clean day), and such lessons tend to help the children to lead clean lives.

Health and Sanitation.—Dr. Fraser, the school physician, has been faithful in his attendance, and special attention has been given to the physical well-being of the pupils. During the year one boy and two girls have died. Five pupils have been sent home on account of ill health.

Water Supply.—There is an abundant supply of good spring water, pumped by a windmill from a well on the hillside into two large tanks at the top of the building, and from there by means of pipes it is conveyed to all parts of the main building and to the principal's residence. The system gives good satisfaction, except in very calm weather. Hot water is supplied from a hot-water heater in the basement.

Fire Protection.—Some small chemical extinguishers are kept on hand. Fire-buckets are kept full of water at all important points. Hose is attached to our water supply. Our main protection is a large McRobie engine in the cellar, with a drum on each flat, with sufficient hose to reach to all parts of the same. There is a fire-escape from each of the four dormitories. But while our main building is well protected, and the principal's home has the advantage of being connected with the water system, we have no other protection for all the other buildings.

Heating and Lighting.—The building is heated by hot air. Three large wood and two coal furnaces are kept going during the cold weather, and they give good satisfaction, except one wood furnace, which is not strong enough to do the work assigned it. With care, frost seldom finds its way into any part of the building.

The main building, principal's residence and the barn are lighted by electricity supplied from Brandon. This is very convenient and safe.

Recreation.—The favourite outdoor sports are : football, baseball, croquet, marbles, skating and sleighing. We have a large play-room for the girls, where checkers, forte, crokinole, Indian clubs, dumb-bells and reading are greatly enjoyed.

General Remarks.—During the year eighteen pupils have been discharged and twenty-four admitted. The work in the class-rooms and throughout the industrial departments has been satisfactory. The farm and garden have been valuable for training and of great help to the institute.

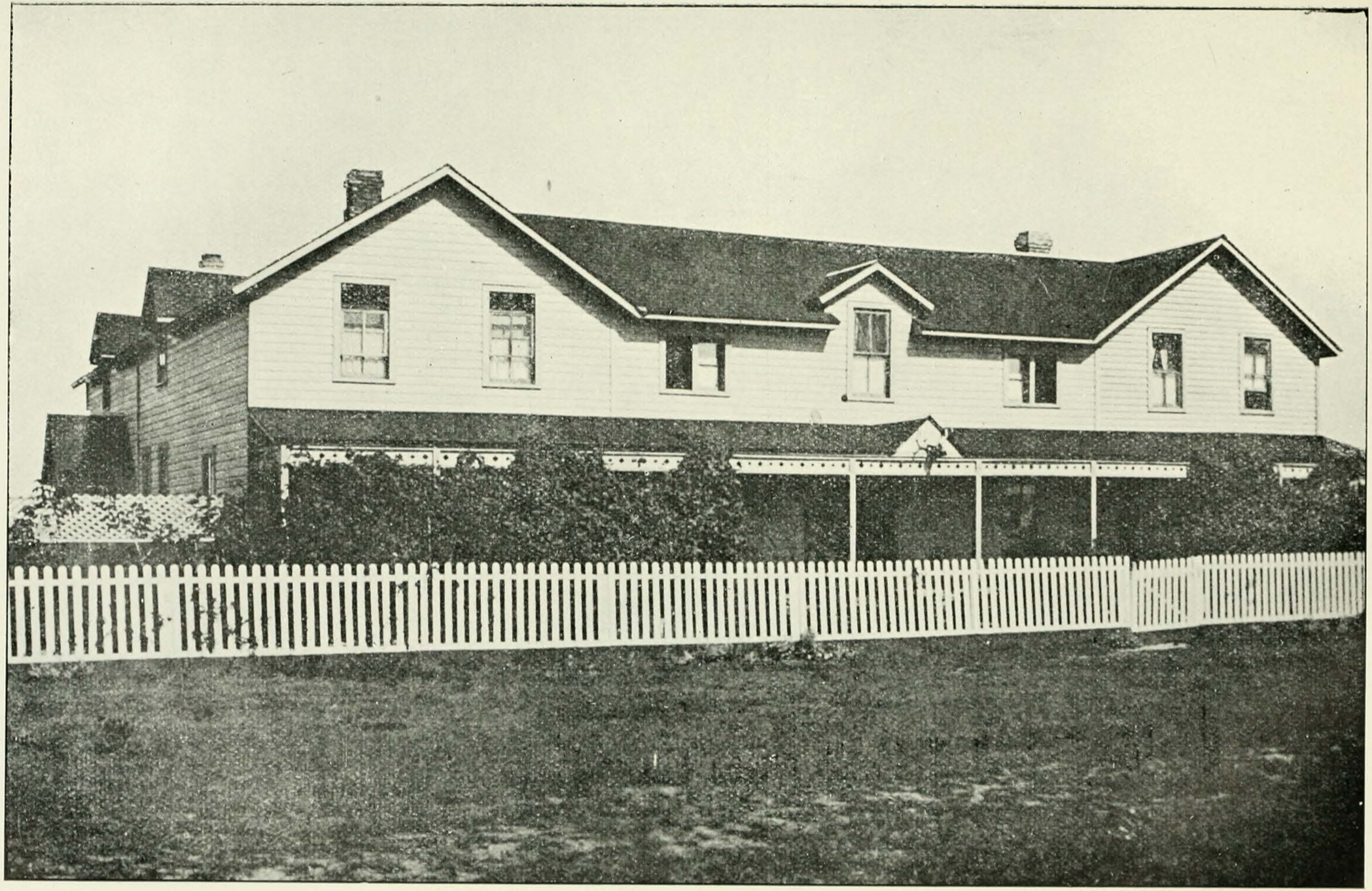
The year has been one of advancement. The pupils have been healthy, cheerful, contented and obedient.

Many improvements have been made to the farm, garden and buildings, and by the aid of an excellent staff the whole institution is made as homelike as possible, and we trust something has been done, both by precept and example, toward the great and difficult task 'character-building.'

I have, &c.,

T. FERRIER,

Principal.



Old Sun's Boarding School, Blackfoot Reserve, Alta. [321]
(Church of England).

PROVINCE OF MANITOBA,
ELKHORN INDUSTRIAL SCHOOL,
ELKHORN, July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit herewith my annual report for the year ended June 30, 1904.

Location.—The new home, which we have now occupied since September 7, 1899, is situated about one quarter of a mile from the town of Elkhorn, and stands in about the centre of what was formerly known as the 'Gore,' a level piece of excellent turf, some forty-two acres in extent, bounded on the north by the Canadian Pacific Railway main line, on the south by a fence running along the public road allowance. West of this and immediately adjoining it lies our farm of three hundred acres, being the southwest quarter of section four, and southeast quarter of section five, township twelve, range twenty-eight, which contains excellent pasturage and wheat-land. In addition, the department purchased twenty acres of good hay-land adjacent to the 'Gore,' all of which is owned by the Dominion government.

Buildings.—These comprise the main building, the principal's residence, the laundry and the gymnasium, which latter contains the carpenter, paint and shoe-shops, having been fitted up in the month of August, 1900, horse and cow stables, root-house, coal-shed, boys' and girls' outhouses, and implement-shed. There is also a small frame building covering the pump and sewage tank, with which is connected a windmill used in emptying the tank.

Accommodation.—There is accommodation in the school for one hundred pupils and fifteen of a staff.

Attendance.—The full complement of pupils has not yet been reached, but I have reason to hope that this will be accomplished during the ensuing year.

Class-room Work.—The results of the school work have been most satisfactory, no less than five pupils attaining standard VI at the final examination ; while the pupils in all standards have made really excellent progress. I gave a silver medal for competition in standard V, which was won by No. 206, Arthur Edward Smith, while two good conduct prizes, also presented by myself, were awarded to Nos. 191, Ambrose Pruden, and O 110, Sarah Cook.

Farm and Garden.—The promise of the early part of the season was fulfilled in the quantity of grains harvested, though owing to the unprecedentedly wet fall, the grade did not reach the highest standard. The returns were : eight hundred bushels of wheat, seven hundred bushels of oats, three hundred bushels of barley, six hundred bushels of potatoes, fifty bushels of onions, and large quantities of turnips, mangolds, carrots, beets and all the usual garden vegetables. This year again in spite of much delayed seeding the prospects are even better than last year, the wheat being splendid in quantity so far, as well as quality. For this year there are sixty-five acres in wheat, twenty acres in oats, five acres in barley, six acres of garden, and forty-five acres of summer fallow.

Industries Taught.—The boys are instructed in carpentry, shoemaking, painting, blacksmithing, harnessmaking, farming, gardening, and baking, while those not otherwise employed attend to the necessary work about the school including the lawns, drives, flower garden, and the smaller vegetable garden. The principal's grounds have been laid out with paths and flower beds, and trees have been set out around the

house, while some two thousand trees have been planted mostly to the north side which are nearly all doing splendidly. Along the eastern side the grounds have been fenced in and the principal's residence has also been inclosed with a picket fence. The girls perform all the necessary household duties very efficiently and in addition are instructed in sewing. knitting, cooking, washing and housework generally.

Religious and Moral Training.—Particular attention is paid to this, everything being done with a view to elevating the moral tone of the pupils. Prayers are held both morning and evening with occasional addresses, and on Sunday all the pupils attend Saint Mark's church for divine service twice, while Sunday school is held on Sunday afternoon in the institution for the smaller children, the larger ones attending Saint Mark's Sunday school.

I am very happy to say that many of my pupils show that our efforts in this direction are having due effect. I can also say with pleasure that the general conduct of the pupils during the year has given me the greatest satisfaction, punishment having been inflicted in but few instances.

Health and Sanitation.--One death only occurred during the year, No. O 109, Rachel Henderson, having died of tuberculosis on July 16. No. O 111, Agnes Cook, has recovered from a severe attack of typhoid fever which kept her in bed for over two months ; while another pupil with pneumonia was taken home when nearly convalescent. Other than this, there has been no sickness beyond the usual minor ailments, and but few of these.

The drainage system is working satisfactorily. There is a large tank at a considerable distance from the main building into which the sewage is carried from the bath-rooms, kitchen and laundry, and this is pumped by a windmill well out on the open prairie.

The outhouses for boys and girls are erected at a safe distance from the school building so that any danger of defective sanitation from this source is obviated.

Water Supply.—The general water-supply for the school is from a well in the centre of the building; while for drinking purposes, a subsidiary well has been dug, a short distance from the school.

The water is pumped to a tank at the top of the school by means of a 'Rider-Ericsson' hot-air engine and each floor has its service therefrom. An attachment has also been added on the basement floor whereby the main drains can be thoroughly flushed, either from the pump or from the tank.

Fire Protection.—The school is furnished with the McRobie fire-extinguisher in the basement, with connections and hose on all floors, also two Babcock and six Stempel extinguishers, the latter conveniently placed throughout the building, while each dormitory has a fire-axe.

Fire-drill is held at regular intervals during each month.

Heating and Lighting.—The lighting is done for the present by ordinary coal-oil lamps, but it is hoped that at no distant date the town will adopt a lighting system which will no doubt be extended to the school and so do away with the obvious dangers and disadvantages of the present arrangement.

The heating is done by hot water, supplied by two furnaces, a system which has been found inadequate, but I understand that the department is making arrangements to have this remedied before winter.

Recreation.—Football is always the principal game. There is a good football ground, which is also used for baseball and other games, which are all encouraged as much as possible, so long as the general work is not interfered with.

For the boys in winter, there is a gymnasium, fitted with the usual apparatus and warmed by a wood stove, which makes an excellent playground, while the girls have their own play-room in the main building.

Both boys and girls avail themselves of the excellent tennis court, while the girls have their football, swings and other amusements. During the summer evenings,

after the work is done, the girls are frequently taken for walks by one or other of the lady members of the staff.

Though there is at present no regular band instructor, the band maintains its efficiency and has on several occasions made a satisfactory appearance in public.

General Remarks.—In March the Assistant Commissioner visited the school on a brief tour of inspection, together with Principal Sinclair of the Regina industrial school, the Rev. Dr. McKay of Toronto and Mr. Menzies of Winnipeg.

On April 25, the Lord Bishop Coadjutor of the diocese visited the school and addressed the pupils.

On June 13, I went away to visit the Pas, Lake St. Martin and Fairford reserves, returning in September. I brought several new pupils with me and found the prospects to be very encouraging as regards the future.

On December 11, I left again for a few days visit to St. Peters and Brokenhead reserves, securing more pupils.

On June 29, the matron, Miss Dickin, who has been connected with the school for over eight years, severed her connection here to be married. Her departure was regretted alike by pupils and staff. She was always efficient in all branches of her work and her duties were performed with a zeal and thoroughness which left nothing to be desired.

There has been no further incident during the twelve months to disturb the even tenor of the work. Everything has gone smoothly forward. The pupils are all cheerful and happy, performing contentedly the duties assigned to them, while my efforts for their benefit are ably seconded by the members of the staff, and I cannot but feel deeply thankful for all the blessings which, I feel, are attending the work here.

I have, &c.,

A. E. WILSON,

Principal.

PROVINCE OF MANITOBA,
RUPERT'S LAND INDUSTRIAL SCHOOL,
MIDDLECHURCH, August 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report on the affairs of the Rupert's Land industrial school for the year ended June 30, 1904.

Location.—The school is located in the parish of St. Paul on the west bank of the Red river, about seven miles by the main highway, north from the city of Winnipeg.

Land.—The farm comprises all of lot eighteen in the aforesaid parish and contains about three hundred and seventy-five acres; the same was purchased from the authorities of the Church of England. One-half the land is only fit for hay and grazing purposes ; the most of the balance could be cultivated in ordinary years.

Buildings.—The buildings consist of the main building of solid brick, on stone foundation. In this building are the dormitories, the staff's quarters, offices, dining-room, kitchen, wash-rooms and water-closets. A large frame building, the upper story of which is used as class-rooms and the lower as a recreation hall ; a printing office; a frame addition to the main building used as a laundry and sewing-room ; adjoining this is the engine-house ; in the same yard is the horse-stable, granary and store-

house, carpenter-shop, coal-shed, blacksmith-shop and ice-house. In the front and to the left of the main building is the principal's residence, a two story building on a stone foundation, having all modern conveniences. In another yard is the piggery, cattle stable and implement-shed, adjoining which is a new root-house built last summer, size 14 feet 6 inches by 64 feet, with solid stone wall 8 feet high and 2 feet thick, with frame above, with a capacity of five thousand bushels of grain and roots.

Accommodation.—The school will accommodate sixty boys and fifty girls without crowding, in all one hundred and ten besides ten of a staff.

Attendance.—During the year sixteen pupils were admitted and twenty-one struck off the roll, having been absent for a length of time, and one died. On June 30, there were eighty-nine pupils enrolled, and eighty-three in attendance from the following districts :—

	Pupils,
St. Peter's reserve	27
Fisher River reserve	12
Lac Seul reserve	7
The Pas reserve	9
Rainy River reserve	7
Moose Factory reserve	13
Rat Portage reserve	1
Fort Alexander reserve	1
Split Lake reserve	3
Grand Rapids reserve	3

Class-room Work.—This work is in charge of two competent teachers, a male teacher in the senior room and a female in the junior. The prescribed programme of studies is being followed as nearly as possible. The half-day system is being followed and good progress is being made, in some instances most remarkable. The grading of the pupils in attendance for the June quarter was as follows :—

	Boys.	Girls.
Standard 1	18	16
Standard 2	4	10
Standard 3	5	5
Standard 4	11	8
Standard 5	3	3

Farm and Garden.—There is about seventy acres in crop : sixty-five acres in oats and barley and five acres in potatoes and other field and garden vegetables, also five acres in feed, pease, oats, rape and millet, and about forty acres summer fallow.

Last year there was over one hundred acres under crop which was looking well, when on July 15, we had a very heavy hail-storm, which destroyed everything, leaving us about 350 bushels of poor potatoes and a few dozen cabbage, and not a bushel of grain. This year we have broken ten acres.

Live Stock.—The live stock consists of six horses, one yoke of oxen, nineteen cows, one bull, two steers and fifteen young stock, from two to eighteen months, also fifty-four pigs, all ages.

Industries Taught.—The boys are taught farming, gardening and the care of stock, special attention being given to the same, also carpentering, plastering, kalsomining and blacksmithing ; all the work around the institution in the above lines being done by the pupils.

The girls are taught housework in all its branches, sewing, knitting and fancy-work, samples of which were shown at the Dominion Exhibition in Winnipeg in July, for which the school was awarded first prize and a diploma.

Moral and Religious Training.—The parish church being only one hundred yards away, the services are attended morning and evening by the pupils and staff. Sabbath school is held on Sunday afternoons, in the institution, also morning and evening prayers, as well as a mid-week service by the pastor of the parish. The work of the class-room during the week is also opened with Bible-reading.

Health and Sanitation.—The health of the pupils during the year, as a whole, has been very good, there being nothing more than what is to be expected where there are so many children. During the year one child died, one was allowed to go home and three others are to be sent home ; all consumptives. During the winter about half the children had mumps ; in June there were seven cases of diphtheria of a mild type.

Water Supply.—The water for the use of the institution is taken from two wells. That for drinking and making tea, from a well in the middle of the main yard. That for the general use, is taken from a well near the buildings and is pumped into tanks in the attic by a gasoline engine and is conveyed through the building by pipes.

Fire Protection.—The fire-appliances consist of a large McRobie chemical extinguisher placed in the basement, with connection on each flat, a number of small extinguishers (chemical) located throughout the buildings, besides a number of grenades. In addition there are two tanks on the third floor, holding about one thousand gallons of water, having hose connection on each flat. These tanks cannot always be depended upon owing to the unreliable means in use to keep them supplied, viz., a gasoline engine.

Heating and Lighting.—The building is heated by three hot-air and one hot-water furnace ; the school-room and other buildings, with stoves ; the principal's residence, by hot water. The system is expensive, with a large element of risk from fire, and can be improved upon. The buildings are lighted by electricity, the power being derived from a ten horse-power gasoline engine, and is not to be relied upon, and is also expensive.

Recreation.—Outdoor games of all kinds are encouraged, football being the most popular with both boys and girls. The greater portion of their play-time is devoted thereto, and I find it has a most beneficial effect. I find, the more play, the more work and the harder study.

General Remarks.—The military feature of the institution has been done away with, at least for the present, also the band practice, the latter principally owing to the lack of instruments and a leader ; the former because there is no drill instructor, and we think the time given to both can be devoted to those things which will be more beneficial to those having to make their way in the world when they leave the institution.

In conclusion I am pleased to say that there has been considerable progress made during the year by the pupils, and while there are many things to discourage the principal of an Indian industrial school in the discharge of his duties, he finds many things to brighten the way. It is not possible for those who do not take an interest in the work and visit the institutions and see for themselves, to understand what there is to be contended with and the good that is being accomplished. The institution was represented at the provinical exhibition in July, 1903, by an exhibit of the work of the pupils, for which the first prize was awarded. This year there was another exhibit at the Dominion exhibition, for which a first prize and a diploma has been received. The work exhibited was all done by the pupils and was examined by hundreds of visitors, and I can assure you it was most gratifying to listen to the comments passed by many as they made a critical examination of the work, each piece having the name and the age of the pupil who did the work written thereon. We also sent pupils to represent the school at a field day of all the schools in the county of Selkirk, held in the town of Selkirk. Over two hundred from the two thousand competed in penmanship and one of the Indian pupils carried off second prize, so that the work is not without its encouragements. For all this, I have to thank, for earnest efforts put forth, the members of my staff.

I have, &c.,

J. THOMPSON,
Principal.

PROVINCE OF MANITOBA,
ST. BONIFACE INDUSTRIAL SCHOOL,
ST. BONIFACE, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Location.—The St. Boniface industrial school is situated on Meuron avenue within the city limits of St. Boniface, one mile from the city hall and two miles from Winnipeg.

Land.—Forty-four acres are in connection with the school. This land is divided into two lots, one is situated east of Meuron avenue extending to the Seine river, it is eighteen chains long and said to contain 30 acres more or less. The other lot is west of Meuron avenue and has an area of about of 14 acres. This land is a portion of lot eighty, of the parish of St. Boniface, according to the Dominion government survey of said parish. It was selected by the late Archbishop of St. Boniface and offered to the department for the purpose for which it is now used, in August, 1896, and for the purchase of which a cheque for $2,000 was issued by the department. The lot east of Meuron avenue is to a certain extent the remains of an old brick-yard, and is of very little use for anything but pasture, as weeds are very plentiful.

Buildings.—The main building is in a fair state of repair. No new buildings have been erected this year.

Accommodation.—There is room in the dormitories for 110 children; 55 boys and 55 girls; if we could recruit to that number. There is also accommodation for a staff of 16 persons.

Attendance.—The recruiting of children is becoming more and more difficult. Still, this year fifteen pupils have been secured. Three were discharged, two died. The last annual report showed 70 pupils, this year it shows 80. Five girls and three boys deserted, but were brought back to the school the same day.

Class-room Work.—The programme of studies provided by the department is followed. Progress is fair. Singing lessons are given daily. The children are very fond of music. Visitors are always delighted with the singing, band music, fancy drills and dumb-bell exercises.

Farm and Garden.—Last fall, 750 bushels of potatoes were harvested. From the garden, we had onions, cabbages, carrots, turnips and other vegetables. Hay could only be obtained at a very high price, so we had to slaughter the stock, which consisted of fourteen animals (cows). Four horses only were wintered. Since spring, two horses were sold and four cows bought.

Industries Taught.—Besides carpentering, which consists only of repairs, no other trade is taught. The proximity to the city, where even skilled mechanics do not find steady work, prevents us from keeping a blacksmith and shoeshop. Farming would offer good prospects of profit, if we could get land for farming and stock-raising. The bigger boys are always anxious to work on the farm whenever they have something to do. The girls have made good progress in learning all things connected with housekeeping ; cooking, washing, cleaning, making and mending clothes.

Moral and Religious Training.—Great care is taken with this part of the children's education. Religious instruction is given daily by the principal.

Health and Sanitation.—The health of the children has been good. The ventilation, though not perfect, is satisfactory; disinfectants are freely used.

Water Supply.—Our well continues to supply excellent and abundant water, which is pumped up by a Bulldozer Myers power pump, worked by a two and a half horse-power gasoline engine.

The quickness in obtaining the water makes this kind of outfit a most suitable one for the institution. The average consumption of water reaches almost two thousand gallons a day, and the average cost of gasoline per day is six and a half cents for pumping the water needed in school and stables.

Fire Protection.—We have a McRobie fire-apparatus with two hundred feet of one-inch rubber hose. Six Dominion fire-extinguishers, six fire-axes and a dozen fire buckets distributed throughout the building.

Heating and Lighting.—Our system of hot-water heating continues to give good satisfaction. The acetylene gas plant gives satisfaction.

Recreation.—There is a recreation-hall on each side of the house opening to large playgrounds. The children are fond of games and enjoy the fresh air. They are most happy when they can be outside.

General Remarks.—Thanking the department for the kindness shown to us during the past year,

I have, &c.,

N. A. RUELLE,

Principal.

PROVINCE OF MANITOBA,
BIRTLE BOARDING SCHOOL,
BIRTLE, September 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the annual report of the Birtle boarding school for the year ended June 30, 1904.

Location.—The school is situated on the north banks of the Birdtail river within the limits of the town of Birtle and twelve miles from the nearest reserve.

Land.—There are twenty-five acres owned by the school and twenty-five acres of rented land, all situated in the municipality of Birtle in 6, 17, 26. The greater part of the land is taken up with hill and ravine, which makes it unfit for cultivation though it affords a fair pasturage for the cattle. Ten acres are under cultivation.

Buildings.—The school is a two and one-half stone structure with a good basement. The barn is a frame building with a stone stable and root-house beneath. Last fall it was accidentally burned down but was replaced before winter set in. There is also a frame hen-house and a log ice-house.

Accommodation.—The building will easily accommodate sixty pupils and a staff of five.

Attendance.—The year opened with forty-two in attendance and closed with the same number. Six new pupils were enrolled and six names were taken off the roll, two of these being transferred to the Regina industrial school. The grant-earning number is forty.

Class-room Work.—The pupils are making very good progress under Miss McGregor's efficient teaching.

Farm and Garden.—We broke four acres of new land last summer, which makes ten acres in all now under cultivation. This furnishes us with abundance of vegetables, but we can grow very little grain. The boys would like to have fields of wheat and oats, but with our small farm of hilly land this is impossible.

Industries.—The girls are taught general housework which includes cooking, laundrying and sewing. During the winter they did considerable bead-work, making belts and chains. These supplied them with pocket money. They also assist with the milking and garden work, some of them having small gardens of their own. The boys are taught the care of stock, gardening and carpenter work ; they also have their own gardens and are competing for a special prize offered by the Agricultural Society for the best collection of vegetables from the school.

Moral and Religious Training.—The children attend church services and Sabbath school in the Presbyterian church of the town of Birtle. Every Monday evening the pastor of the church has a meeting for them in their own school-room. Besides this they have daily readings and memorizing of passages.

Health and Sanitation.—We have had comparatively little sickness during the year. During the spring a number of the more delicate ones have been sleeping out in tents and it has improved them very much. On account of the favourable situation of the school the sanitary conditions are good.

Water Supply.—A good system of water-works has just been installed. A well, 900 feet away from the school, supplies the water through a two-inch pipe to a forty barrel tank in the basement. A gasoline engine and pump elevates it from this tank to a similar one in the attic. This has been a dry summer, but there has always been a fair supply on hand. The water is very good, though rather hard for washing. Another forty-barrel tank in the basement collects rain-water from the roof.

Fire Protection.—Connected with the stand pipe on each flat is a two-inch canvas hose sufficient to reach any part of the building. This is kept neatly folded on a swinging rack and ready for any emergency. With a forty-barrel tank full of water in the attic and an engine to keep it full, we should be able to fight any fire. A fire-escape which may be reached from either wing, affords a means of exit if needed.

Heating and Lighting.—The building is heated by three wood furnaces. A much more even and regular temperature could be maintained and at less expense were a hot-water heating system installed. With the present water system this could more easily be introduced. The building is lighted by acetylene gas from the Birtle generator. This gives a very safe and satisfactory light.

Recreation.—The children enjoy the usual out-of-door sports:—coasting, skating, football, tennis, skipping, &c.

I have, &c.,

E. H. CRAWFORD,

Principal.

NORTHWEST TERRITORIES,

ST. JOHN'S HOMES—BLACKFOOT RESERVE,

GLEICHEN, ALTA., August 31, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit herewith a report of the St. John's Homes (the Old Sun's and White Eagle's boarding schools) on this reserve, and to acknowledge the substantial government aid received by us during the fiscal year just ended.

Location.—The homes are situated—the one at the north camp and the other at the south—abtout ten miles apart, and within a few miles of the Bow river in each

case. That at the north camp is known as Old Sun's school, and the other as White Eagle's. In each case a few acres of land have been inclosed in connection with the school, portions of which are under cultivation. At the south camp nothing is being done at present, pending arrangements for permanent amalgamation of the two schools. The post office, Gleichen, is just under five miles from Old Sun's, and about ten miles from the White Eagle boarding school.

Buildings and Accommodation.—The Old Sun's boarding school comprises the boarding school proper, the school-house, laundry and coal and wood-shed. The White Eagle's school is a large and attractive-looking building, erected in 1894 at the particular request of the south camp Indians, who approached the Superintendent General of Indian Affairs in person in the matter. In the hope of effecting an amalgamation of the two schools, and with a view to considerable financial savings, the boys from White Eagle's were removed to Old Sun's school, and there should be as little delay as possible in the removal of the building also, if the amalgamation is to be maintained. The cramped condition of our present quarters and the unsanitary surroundings make it most essential that the White Eagle's school should be removed with all convenient speed. It is now three years since repairs and improvements were effected, pending the removal of the buildings.

Attendance.—The number of children on the schcol roll at the end of the fiscal year was twenty-four boys and sixteen girls.

Class-room Work.—The results here have been much more encouraging owing to a greater readiness to speak up and to practise newly acquired knowledge. We feel the need of a reader for the older children more adapted to the needs of their future lives than the general Canadian Reader now in use.

Industrial Work.—About three acres of farm and garden have been well looked after by the boys, and we gathered a fairly good crop of potatoes and other vegetables, but have suffered considerably from the gopher pest. The home flower garden with its trees in luxuriant foliage and its well-kept lawn reflects great credit on those in charge of it. Besides this, the children are engaged daily in the stable and housework—feeding and grooming horses, milking cows, making the butter and bread, mending and making clothes and laundry work, besides all the general routine of house duties.

Moral and Religious Training.—Special attention is given to this side of our work. Apart from the regular Sunday services—one of which is conducted altogether in their own language—the children receive definite religious instruction in the Sunday school and at morning and evening prayers each day, all of which is supplemented by simple practical ethical instruction in and out of school. The children are very happy, and many of them show a true desire to live good and useful lives.

Health and Sanitation.—Nothwithstanding the ample medical provision available the general health of the children and staff has been much below the average, and is traced to the unsanitary surroundings and the condition of the well water.

Water Supply.—Though the supply is abundant, the condition of the subsoil through which it passes is more or less contaminated.

Fire Protection.—A number of fire-extinguishers and hand-grenades are conveniently placed throughout the building, and buckets and tubs of water are kept where they can be easily got at in time of need. Axes are also kept ready for use. Fire-escapes outside the building are permanently connected with the dormitories and are easy of access.

Heating.—The boarding school is heated by stoves only and the school-house by a furnace. Asbestos safes are used.

Recreation.—Every attention is given to recreation, and the children are encouraged to be as much as possible in the open air. They are taught to amuse themselves with a variety of games, and we endeavour to oversee and guide their recreation.

I have, &c.,

H. W. GIBBON STOCKEN,

Principal.

NORTHWEST TERRITORIES,
BLOOD (ST. PAUL'S) BOARDING SCHOOL,
FORT MACLEOD, ALTA., July 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I beg to submit my annual report.

Location.—The Blood (St. Paul's) Church of England boarding school, is situated fourteen miles south of Macleod, which is our post office. The school is opposite the agency headquarters on the Blood reserve and is separated from it by the Belly river. The porperty is owned by the Church Missionary Society, London, England.

Land.—The land, which is beautifully situated and well watered, comprises an area of 160 acres. Its natural features are very striking. On the north and east it is bounded by the Belly river ; on the south it is surrounded by trees with the Belly buttes forming the background, while on the west is a large plantation. The soil is of a sandy nature, and is well adapted for gardening.

Buildings.—The buildings, which with one exception are uniformly painted, present a very pleasing appearance. They are built around a square. Beginning at the northwest corner of the western side is the girls' home, a commodious building with accommodation for fifty girls. Immediately south, stands the school-chapel, a very neat structure and well-lighted. At the end of the west side is the horse-stable with harness-room, granary and coach-house under the one roof. On the south side and at the west corner is the coal-house and carpenter's shop. To the right is the general store or provision house. Next in order is the boys' home with accommodation for sixty boys. This building resembles the girls' home, but is on a less pretentious scale. At the east side of the square and at the south end corner is the meat-house, while some fifty yards to the north of the latter is the hospital ; this is a well-planned building containing two large general wards, dispensary, bath-room and kitchen. On the north side is the principal's house.

Accommodation.—There is room for eighty pupils and a staff of eight persons.

Attendance.—The pupils being in residence ensures regularity. The number on the roll is forty.

Class-room Work.—The work done in the class-room is of a high order. The pupils are interested in their studies, and every advantage is given whereby they may acquire English. Miss Wells, the teacher, is a capable and thorough person.

Farm and Garden.—The instructor in this department knows his work thoroughly. Under his supervision all boys over fourteen years of age are taught how to handle and care for horses and cows. They are further instructed in the use and care of farm machinery and implements.

Industries Taught.—The boys learn farming and gardening ; the girls are instructed in housekeeping, cooking, butter-making and dressmaking.

Moral and Religious Training.—This being a Church of England school, the pupils receive definite church teaching ; they are taught to love their Bible and prayer-book. Matins and evensong are said every day.

Health and Sanitation.—The health of the pupils has been good during the year. An epidemic of mumps visited the school, but was of a mild form. Our dietary table is a good one I believe. Attention is paid to the proper cooking of meats and the baking of bread. Vegetables and milk form a valued addition to their food.

Everything is done that is possible from a sanitary standpoint. Pits are disinfected and no refuse is allowed to lie above the ground.

Water Supply.—Two wells having excellent flows provide water for use in the buildings. The garden contains a well which a windmill governs.

Fire Protection.—In an institution like this, I was surprised to see such little provision for coping with a fire. Four axes, a dozen fire-buckets, two chemical engines which have outworn their use, and one hand-grenade, constitute our apparatus in an emergency. We have one thing in our favour, for we have a water-supply at or near each dwelling, but apart from this I should say we are very badly equipped as far as material is concerned. The exits from the several buildings are sufficient to ensure perfect safety to life.

Heating and Lighting.—The dwellings are heated by hot-air furnaces and stoves; the latter are considered preferable in frame buildings. We find that the consumption of fuel is greatly lessened by having recourse to good stoves—the hot air blast stove is the one we use—instead of furnaces. It is altogether likely that stoves will provide all the heat in our boys' home this coming winter.

The common oil lamp is the means used in lighting our buildings ; it is carefully handled and as the lamps are trimmed and filled every day when in use, there is the minimum of danger from explosion.

Recreation.—Sports are encouraged. The games chiefly participated in are foot-ball, baseball, quoits and croquet. Swings, cross-bars, and tilting-boards afford amusement especially to the younger pupils. Bathing in summer and skating in winter are pastimes which not only Indian children enjoy.

General Remarks.—No prettier spot could have been selected for a school site than the one occupied by our buildings, but apart from its natural features a great improvement has been made by tree-planting. The pupils on Arbour Day learnt more about trees than they ever knew before, both from a physical and mental standpoint. I hope next year to plant two thousand saplings. I feel that the prettier one makes a place the greater is its object lesson. My advent here was too late to permit laying-out flower-beds ; however, what we lack this year we hope to have next.

I have, &c.,

GERVASE EDWARD GALE,

Principal.

NORTHWEST TERRITORIES,

BLOOD (R.C.) BOARDING SCHOOL,

BLOOD RESERVE, STAND-OFF, ALTA., July 8, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to forward my annual reoprt on the Blood Roman Catholic boarding school for the year ended June 30, 1904.

Location.—The school is situated about twenty-four miles south of Macleod, one mile from the Upper agency, within a few yards of the Belly river, on the Blood reserve.

Land.—The land connected with the school belongs to the reserve. A few acres have been fenced off, portions of which are under cultivation.

Buildings.—The buildings actually in use are as follows : the main building 36 x 36 feet, three stories high, with two wings, each 36 x 32 feet, and two stories high, the said building being divided at present into an office, parlour, refectory, class-room, working-room and recreation-rooms, on the ground floor ; boys' and girls' dormitories, the chapel and private apartments for the staff, on the second story.

There is also situated behind the main building and adjacent to it, a three story building, 20 x 20 feet, comprising kitchen and pantries, and two large rooms reserved for the use of the sisters; the other buildings are, a laundry, 18 x 24 feet, a storehouse and a stable.

Accommodation.—There is accommodation for seventy pupils and a staff of ten.

Attendance.—The number on the roll is thirty-six, eleven more than the grant-earning number.

Class-room Work.—The programme of studies given by the department is followed as closely as possible. The progress is good and encouraging.

Farm and Garden.—About two acres of land are cultivated as a garden, and potatoes, turnips, carrots, cabbages, &c., are successfully grown. Both boys and girls take part in the work under the supervision of a sister.

Industries Taught.—Gardening, stable-work, milking and the care of milk, making of butter, baking, glazing, sawing and splitting wood for the kitchen, form the principal manual occupations of the boys; the girls are trained in all the branches of domestic work, baking, cooking, laundrying, sewing, knitting, dressmaking, ironing, &c. All the children's clothing is made in the school.

Moral and Religious Training.—Great care and special attention are given to this part of education. A certain time each day is devoted to Christian doctrine, and morning and evening devotions are attended in the chapel. The conduct of the pupils throughout the year has been all that could be desired.

Health and Sanitation.—The general health has been very good. With the exception of a few mild cases of scrofula, there has been no serious illness during the year.

The sanitary conditions are looked after carefully; the ventilation is excellent, and everything is kept clean around the house and the outbuildings. The children get as much outdoor exercise as is practicable and frequent baths are resorted to.

Water Supply.—Plenty of good water is supplied from a well near by.

Fire Protection.—Five fire-extinguishers, four hand-grenades, twenty-four fire-pails and four fireman's axes are distributed throughout the halls and the rooms.

There is a fire-escape leading down from each dormitory.

Heating and Lighting.—The school is heated with two hot-air furnaces, and light is supplied by coal-oil lamps.

Recreation.—Recreation is taken three times a day, after each meal. Football, swimming, fishing, shooting with bows and arrows, swinging and skating, are the favourite pastimes of the boys. The girls too have different little games, besides swinging, playing ball and skipping.

Boys and girls have each their own playground and are always under the supervision of an attendant.

I have, &c.,

J. L. LE VERN,
Principal.

NORTHWEST TERRITORIES,
BLUE QUILL'S BOARDING SCHOOL,
SADDLE LAKE, ALTA., June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my report on the Blue Quill's boarding school, for the year ended June 30, 1904.

Location.—The school is situated on Blue Quill's reserve, about six miles south-west of Saddle lake, and one mile north of the Saskatchewan river, on the Edmonton road.

Buildings.—The school is a frame building, 60 x 30 feet, two and a half stories high, and to this is attached the kitchen and pantry. The outbuildings consist of a bakery, laundry, storehouse, stables and several small buildings.

Attendance.—The pupils being all boarders, the attendance is regular.

Class-room Work.—The programme for Indian schools is faithfully followed.

Garden.—About six acres of land is cultivated successfully with all kinds of vegetables.

Industries Taught.—The boys have the care of cattle, preparing fuel, bakery, and the care of their own rooms. They also work occasionally at gardening. The girls are taught sewing, knitting and all household duties.

Moral Training.—Careful attention is paid to moral and religious training. Punishments are rarely resorted to, and rewards are awarded for merit.

Health and Sanitation.—I regret to say that one pupil died during the year of consumption. Five cases of small-pox occurred, but they were all of a very mild nature; excepting those, the health of the pupils has been very good.

Water Supply.—A sufficient supply of water is obtained from two wells situated near the school.

Fire Protection.—Four chemical fire-extinguishers and ladders and pails are kept in readiness. There are eave-troughs round the buildings and barrels are most of the time kept full of water.

Heating and Lighting.—The buildings are all heated with wood stoves, and lighted with coal-oil lamps.

Recreation.—Recreation is taken three times a day, after meals, during which the pupils indulge in outdoor games. The boys are supplied with several large swings. They also indulge in football, baseball, toboggan sliding and skating. The girls enjoy swinging, skating and hand-ball. All the pupils frequently take long walks.

I have, &c.,

LEON BALTER,

Principal.

NORTHWEST TERRITORIES,
CROWFOOT BOARDING SCHOOL,
BLACKFOOT CROSSING, GLEICHEN, ALTA., August 20, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to forward herewith, together with the financial statement, the annual report of the Crowfoot boarding school for the year ended June 30, 1904.

Location.—This school is situated at the south camp of the reserve about ten miles from Gleichen post office, Alberta, and within a few yards of the Bow river.

Land.—There are about four acres under cultivation for the use of the school and about six acres for pasture, all of which is government land belonging to the reserve, fenced in by an agreement with the Indians.

Buildings.—The main building is 36 x 36 feet, three stories high with two wings, each 36 x 32 feet, two stories high; behind the main building and adjacent to it, a two story building 20 x 20 feet. The south wing of the building is not completed yet.

The buildings are divided at present into an office, reception-room, dining-room, kitchen, school-room and recreation-room on the ground floor, and dormitories and chapel on the second floor. There is also a log stable, with a frame roof, 16 x 48 feet, and a root-house. A well-kept picket fence surrounds the front of the buildings and an ordinary wire fence surrounds the garden, pasture and field.

Accommodation.—Under present arrangements there is accommodation for twenty-five pupils, but when the building is completed there will be accommodation for sixty pupils or more, and a staff of eight or ten.

Attendance.—The pupils attend school regularly, all being boarders at the institute. The present attendance is twenty-eight and of this number four are non-treaty Indians.

Class-room Work.—The class-room work consists of reading, writing, spelling, arithmetic, geography, grammar, drawing, vocal music, &c. Progress is noticeable; examinations have been satisfactory and give the teacher much credit. The programme of the department has been followed. The pupils speak English, and seem to take an interest in it.

Farm and Garden.—Up to the present, very little farming has been done, but the garden provides enough work for the pupils during the summer and provides a full supply of potatoes and other vegetables for the use of the school.

Industries Taught.—The boys have special hours for manual work. They help in the care of the cattle and horses in the winter, and in the summer they work in the garden and make hay. The girls are taught housework, baking, cooking, sewing, knitting, &c.

Moral and Religious Training.—Instruction in the doctrines of the Roman Catholic Church is imparted to the pupils; morning and evening prayers are said and half an hour each day is devoted to religious instruction. From their behaviour I am glad to notice that they understand the beauty and the sublimity of their religion.

Health and Sanitation.—The general health has been good; no deaths occurred during the year. The sanitary conditions are looked after carefully and everything is kept clean around the place and in the outbuildings as well.

Water Supply.—The water required is supplied by means of a pump from a well dug close to the buildings.

Fire Protection.—Fire-extinguishers, hand-grenades, fire-pails and fire-axes are distributed throughout the halls and rooms; there is a pump close by the building, but there is no tank in the house as yet.

Heating and Lighting.—The school is heated partly by stoves and partly by one hot-air furnace. The school-building is lighted with petroleum lamps.

Recreation.—Football, shooting with bows and arrows, riding on horseback and fishing, form the favourite pastimes of the boys in summer. The girls amuse themselves by playing ball, dressing dolls, &c. Recreation is allowed three times each day after meals, and is taken outside in good weather, and indoor games are provided in bad weather. The recreation is always under the supervision of an attendant.

Trusting this report will be satisfactory,

I have, &c.,

J. RIOU, O.M.I.,

Principal.

NORTHWEST TERRITORIES,
CROWSTAND BOARDING SCHOOL,
CROWSTAND, ASSA., August, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit herewith my annual report on the Crowstand boarding school, for the year ended June 30, 1904.

Location.—The school is situated on the north bank of the Assiniboine river in Northeastern Assiniboia on Cote's reserve, and four miles from the new town of Kamsack on the Canadian Northern Railway.

Land.—The land consists of three hundred and seventy-nine acres, being the fractional south half of section 19, township 29, range 31, west of 2nd P.M. and part of the N.E. ¼ of 24, 29, 32.

It belongs to the Presbyterian Church in Canada. The soil and location are well adapted for mixed farming.

Buildings.—The main school buildings contain staff quarters, kitchen, children's dining-room, school-room, dormitories, &c. During the year many of these rooms were replastered wholly or in part. Much of the staff quarters was painted or papered and the kitchen, children's dining-room, dormitories and halls were painted. New maple floors were also put down in the kitchen, sewing-room and one of the halls. Besides the main building there are, a stone milk-house and ice-house, two frame storerooms, log carpenter-shop, log granary, frame stable and driving-shed, and a log stable. A root cellar, 30 x 15 feet, with a double sod roof was erected during the year.

Accommodation.—The accommodation is suitable for forty-five or fifty children and the staff necessary to carry on the work.

Attendance.—A grant is given for forty pupils and during the year more than that number was always in attendance. There have been several non-treaty children also in attendance.

Class-room Work.—The latter half of the year's work was slightly disturbed by a change of teachers, but the whole year was a very successful one in the school-room. Prizes for different branches of work were given by Agent Carruthers, and members of the school staff. These were keenly contended for by the pupils.

Farm and Garden.—Last year twenty-four hundred bushels of oats and seventy-five bushels of wheat were grown, besides a large quantity of roots and vegetables. Eighteen acres more land was broken and this year we have nearly sixty acres of farm and garden, showing good promise of an abundant crop.

Live Stock.—At present we have three farm horses, one colt, and one single driver. We have nine cows milking, from which we have been making thirty-five to forty pounds of butter per week, during the summer. In addition, we have ten beef and other cattle, six calves, eighteen pigs and a large number of poultry.

Industries Taught.—The boys are taught general farming, care of stock and poultry, use of tools and farm implements. The girls are taught all lines of ordinary housework including baking, cooking, dairying, washing, ironing, sewing, knitting and dining-room work.

Moral and Religious Training.—A school, situated like this one on a reserve, presents more difficult moral and religious problems than the school removed some distance from reserve life. The work is harder, but the ultimate results are better, because it is not alone the pupils who are helped, but the older people as well.

Morning and evening worship, study of Sunday school lessons, familiar illustrated talks and last, but not least, regular church services, are all employed to build up a knowledge of religious truth and form a basis of right character.

Health and Sanitation.—There have been no deaths during the year of pupils in attendance. The situation is good from a health standpoint, and no serious illness or epidemic has occurred during the year. The drainage for all waste water has been improved by a new drain and cess pool.

Water Supply.— The Assiniboine river continues to be our source of water supply. The labour of drawing the water is very great and it is to be hoped some better source of supply will soon be found.

Fire Protection.—The means of suppressing a fire are very limited. Water, the best means of putting out a fire, is often scarce. The chief appliances are hand grenades, and a number of chemical fire-extinguishers.

General Remarks.—In modes of training either industrially, morally or intellectually, in utensils for work and ideals placed before the pupils, we aim never to lose sight of the kind of life to which the Indian boy and girl must go when they leave school. All education should aim to fit them for this. That which fits them for walks of life which they are never likely to enter is worse than useless.

I have, &c.,

W. McWHINNEY,

Principal.

NORTHWEST TERRITORIES,
COWESSESS BOARDING SCHOOL,
CROOKED LAKE AGENCY, BROADVIEW, ASSA., June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on the Cowessess boarding school for the fiscal year ended June 30, 1904.

Location.—The Crooked Lake boarding school is situated in the Qu'Appelle valley, south of Crooked lake, on Cowessess reserve.

Land.—There are forty acres of land which have been surrendered by the band of the reserve for the use of the Roman Catholic mission.

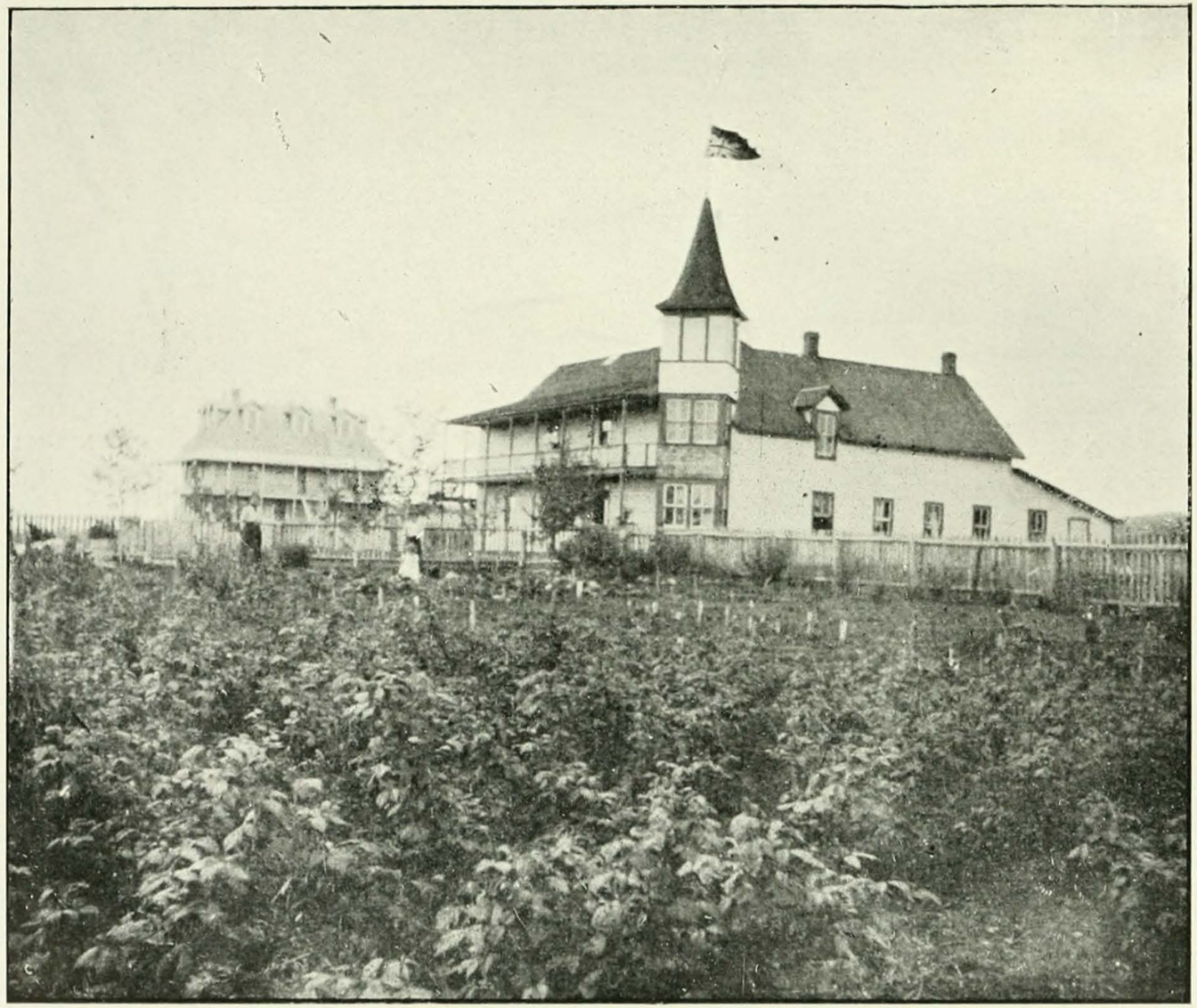
Buildings.—The buildings at present in use are as follows:—the priest's house, 30 x 20 feet; the church, 62 x 20 feet; a house, 20 x 20, exclusively reserved for the Indians, an ice-house, 12 x 14 feet, a stable, 65 x 20 feet and a general work-shop, 30 x 20 feet. The main edifice with the institute proper is a three-story building ; its dimensions are 58 x 38 feet, and the height from the ground to the top roof is 52 feet.

The basement contains a dining-room, a kitchen, pantry, a dairy-room, a lavatory with a large boiler, a rain-water tank, and root-house.

On the first floor are the entrance, the parlours, the chapel, the girls' play-room, 24 x 12 feet, the school-room, 26 x 15 feet 3 inches, and the boys' play-room, 32 x 14 feet.

On the second floor is situated the sewing-room, a pharmacy, three rooms for the accommodation of the staff, the nuns' quarters, and two sick-rooms, one for the boys and one for the girls.

On the third floor are situated two large dormitories, 35 x 23 feet, their height being 12 feet 6 inches; also a garret containing a large water tank.



Onion Lake C. E. Boarding School, Sask. [337]

There is also a general workshop, which is a two-story building, on a stone foundation, 30 x 20 feet.

The firset story comprises a carpenter's department, which is provided with all the latest wood-working tools, viz.: a buzz-planer, a circular saw table, a wood-turning lathe, a band-saw, an emery wheel for grinding tools, and an improved wood-lathe.

On the upper floor we have organized a small shoe-shop department, for the purpose of teaching our young boys all the necessary manual work. A few of the large boys repaired their own shoes quite satisfactorily.

Accommodation.—Under present arrangements there is accommodation for sixty-five pupils, and a staff of eight.

Attendance.—The pupils being all boarders, the attendance is very regular, and I am happy to state that the emolument has considerably increased during the year. We have reached the authorized number of forty pupils without any difficulty.

Class-room Work.—The programme of studies prescribed by the department is followed as closely as possible under the circumstances. The subjects taught are: religious instruction, grammar, drawing, spelling and useful knowledge in arithmetic, history and geography, but special attention is given to reading and writing. The progress is good and encouraging. English is generally spoken and I may say it is now quite familiar to almost all the pupils.

Farm and Garden.—There are about fifty acres this year under cultivation. We have also a garden in which is raised a full supply of potatoes and other vegetables for the use of the school. The garden and the farm work give the children a healthy occupation.

Industrial Work.—Our children have special hours each day for manual work. The boys are kept working according to their age; they have learned to bake their own bread, besides they help in caring for the horses, cattle, pigs and poultry. The girls are taught sewing, knitting and general housework, without neglecting, however, to keep clean their recreation-room and dormitory.

Moral and Religious Training.—Particular attention is given to this important branch of education. A short religious instruction is given daily on some practical subject, also on order, cleanliness, politeness and obedience; after which hymns are sung. The character of each pupil is cultivated with care.

Health and Sanitation.—The sanitary condition of the school, owing to the excellence of our fresh air, drains and the abundance of light, is very good and the general health of the pupils is a surprise to all our visitors. Frequent baths are taken and the premises are always kept in perfect order.

Water Supply.—Our water-supply is taken from a well in the basement. Although we have all the water necessary for ordinary purposes, still, in order always to have an unlimited supply at hand to be ready for fire, the well should be deepened. The water is of fair quality.

Fire Protection.—Fire-protection is abundantly provided for, by means of a gasoline engine and power-pump of one hundred gallons capacity per minute, connected by a two inch stand-pipe with a tank in the attic, which tank can be shut off by one pull of a lever and the water is then pumped direct into the stand-pipe, maintaining a pressure of 100 pounds on a $1\frac{1}{2}$ inch hose, with $\frac{7}{8}$ inch nozzle. These connections are placed in each dormitory and in each hall, also one in basement and one outside of building. The pump and engine are used to elevate the water required to supply the tank in the attic; from thence it flows through a stand-pipe to the plumbing system, which is consequently always ready for use.

The engine is started by an electric spark, and a stream can be playing on the fire in ten seconds. The engine is also provided with tube ignition, and should a fire start in such a place that the engine could not be operated, we should still have all the water pressure from the tank on the hose all the time, which is a pressure of twenty-three pounds in the basement. The pump is provided with a safety-valve to prevent breakage. Besides we have two Babcock extinguishers in a convenient place, and also

a dozen fire-buckets hung up throughout the diffrent rooms. I regret to say however, that we have not been able, as yet, to provide the building with fire-escapes.

Heating and Lighting.—The building is heated entirely by two hot-air 'New Idea' furnaces. An abundant supply of pure air is constantly admitted, to replace the foul air that leaves by the ventilators, which are placed in the dormitories and halls and give great satisfaction. The school is lighted throughout by acetylene gas, the machine being kept in a properly ventilated room by itself. No lighted lamps are allowed inside and matches are placed under the control of the attendants. Furthermore, a new system of generator adapted to the acetylene machine by Rev. Brother Eugene, has greatly improved its working.

Recreation.—During summer, football, swimming, fishing and shooting with bows and arrows, and in winter skating, singing, playing cards, marbles, checkers and playing the violin indoors, are the favourite pastimes of our boys. The girls amuse themselves with drawing-slates, dressing dolls, playing ball, singing and skipping.

General Remarks.—Since my last report many repairs have been made throughout the house. The walls have been primed with alabastine ; the girls' play-room transferred from the second story to the first, and now occupies 24 x 12 feet ; a water-closet has been made in this apartment and also a water basin with faucet, which makes it very convenient for our girls, who have all the necessary accommodation without leaving their play-room.

The greatest improvement appears to be in our laundry, a new style washing machine, which turns by means of a gasoline engine, has been placed in the cellar. This machine is a self-reverter and works like a marvel; the engine mentioned above is also used in turning the separator and churn. I may add that all possible efforts are made to render the school as comfortable as can be.

Furthermore, I wish to express my sentiments of deep sympathy for the loss sustained through the death of our good and devoted inspector, Mr. L. J. A. Leveque, and Mr. Magnus Begg, our agent, who were both always devoted to the interests of our school.

In closing my report, I feel it my duty to state that during the past year, there has been a marked progress among the pupils in acquiring and speaking the English language, and their general conduct was fairly good.

I have, &c.,

S. PERRAULT, O.M.I.,

Principal.

NORTHWEST TERRITORIES,
DUCK LAKE BOARDING SCHOOL,
DUCK LAKE, SASK., July 22, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the fiscal year ended June 30, 1904.

Location.—The school is located about half a mile from the town of Duck Lake, and three miles from Duck Lake reserve.

Area.—The land in connection with the school comprises one hundred acres, belonging to the government. Adjoining the school land, there is one quarter section, being the northeast ¼ section 33, township 43, range 2, west of the 3rd meridian, and which belongs to the Corporation of the Oblate Fathers, but is cultivated for the

benefit of the school ; wheat, oats, barley, hay and potatoes, being the chief productions therefrom.

Buildings.—The main building consists of an entrance-hall, reception-room, principal's bed-room, offices, and dining-room. The girls' quarters are commodious and complete excepting a sewing-room. No new buildings have been erected, nor repairs made, as no money was available for these purposes during the year.

Accommodation.—There is ample accommodation for sixty girls in our new dormitory, though that number is not reached. The boys are somewhat more crowded, but we are looking forward to providing more accommodation for them in the near future.

Attendance.—The attendance has been an average of the authorized number, one hundred pupils, all of whom are boarders. The range is from forty-five to forty-nine girls, and from fifty-two to fifty-five boys.

Class-room Work.—The boys' teacher being obliged to resign his position before the close of the year, the school continued in session as usual under the direction of the sisters, who combined the work by grading the classes, placing the more advanced boys and girls, to the number of forty, in the same standards, IV, V and VI, under one teacher, and sixty boys and girls of standards I, II and III in a second class-room, two sisters being in charge of this class. The progress is quite remarkable in reading, writing and arithmetic. Semi-annual examinations and simple rewards of merit have produced a most pleasing rivalry between boys and girls. We feel confident that the mixed system under the direction of the sisters has many advantages, both from a moral and an economical point of view. The present arrangement is only provisionary, but we hope to make it permanent. The half-day system is followed for the advanced class. Lessons in singing, manual work and healthful gymnastic exercises are given regularly outside of class hours.

Farm and Garden.—Our vast garden has this year been cultivated entirely by the boys, under the supervision of the principal, and considering that no professional gardener was employed as formerly, the staff is justly proud of the success in both vegetable and floral productions. The farm products of 1903 were as follows: wheat, six hundred and fifty-nine bushels ; oats, one thousand and four bushels ; barley, one hundred and forty-six bushels; potatoes, five hundred bushels ; also a supply for the year, of carrots, turnips, onions, beets and cabbages.

The spring sowing of 1903 consisted of eighty-four barrels wheat, sixty-three barrels oats, twenty barrels barley, seventy barrels potatoes, one acre each of beets and turnips, together with all the ordinary garden vegetables. The older boys under the direction of a very intelligent and trusty farmer, took a fair part in this work, and manifested unusual interest in so doing.

Industries Taught.—All farm and garden work, care of horses, cows, calves, poultry, fence-making and the cutting and sawing of wood, have been done by the boys during the year, while the girls have made amazing progress in fine mending, also the cutting and making of all the garments for the household. A great competition has sprung up between the older ones in soap-making, of which over five hundred pounds have been manufactured in connection with the laundry this year. This being a product of refuse, bones and wood ashes, it is a very useful and economical industry for the school. Our young Indian girls bid fair to become first-class butter-makers, and receive lessons in this department from one of the sisters, an expert in the business.

Plaiting wheat straw for hats is another form of manual work which delights our Indian girls, whose deft fingers will soon enable them to make their own hats, and in time perhaps provide some for the boys as well. This will prove another source of economy for the institution, and will no doubt be gratifying to the department.

Arrangements are made to have a bakery running in connection with the school. We hope to have some boys capable of learning the trade and taking charge of the business a little later.

Moral and Religious Training.—We can safely say that it is on the side of religion and morality that we perceive the most consoling progress. The children show themselves very docile to the lessons they receive daily in these matters. It is true that they are consummate tricksters, yet, through the force of persuasion, and comparison between right and wrong, we have obtained from them fair evidences of candour and sincerity.

Health and Sanitation.—We have to report an unexceptionally healthy year for the staff and pupils. By dressing the children warmly, giving them plenty of wholesome food and daily outdoor exercise, even on the coldest days of winter, we were not annoyed by a single case of any disease during the cold season. In the spring a few cases of dysentery gave us a moment's alarm, but nothing serious resulted. A skilled infirmarian, has, with nature's remedies, so successfully combated the tendency to scrofula, so common among the Indians, that the children present a remarkably healthy appearance. With this state of improved health, we notice an amelioration in the instincts and dispositions of the children. Ventilation and cleanliness are our chief preventives against diseases.

Fire Protection.—Our appliances in case of fire are: six Stempel, four Star and one Victor fire-extinguisher, eighteen hand-grenades, eight axes, and a force pump. A great need of ladders and buckets is felt, there being none on hand.

Heating and Lighting.—Three furnaces, kept in operation night and day during cold weather, keep the house at a healthy and comfortable temperature. The lighting in the house, barn and stables is by acetylene gas, the machine being in an isolated apartment, to which none except the officer in charge is admitted.

Recreation.—Outdoor games for both boys and girls are many and varied. The grounds are so large that all have space to follow their inclinations. No games are compulsory, therefore romping, skipping-rope and ball-playing never flag; while in doors we enforce gymnastic exercises to a certain extent, followed by checkers, marbles, forfeit games, and not unfrequently singing and music make up a pleasant part of the recreations.

Admissions and Discharges.—Ten pupils were admitted during the year and ten were discharged, most of these had an honourable discharge, and returned to their homes well convinced of the advantages which the school gave them, by fitting them for the civilized world. It is with a certain regret that we saw those dear children leave us, after having spent several years in the institution, where they gave satisfaction and lent a helping hand in the work.

General Remarks.—It was with universal and genuine regret that the staff and children of our school were called upon during the past year to bid adieu to some very kind friends and benefactors. Rev. Father Paquette, founder and principal of the school, having exhausted his health in his arduous work, was obliged to take a well-merited rest. His monumental labours during nine years in connection with the school reduced him to a state of health which alarmed his friends, who unanimously insisted upon his retiring for a while from active duties. A very touching farewell ceremony was tendered to the devoted father on November 7, 1903. There was also present Agent Jones, who likewise was taking leave of the school, to which he had always been a true and interested friend. On the same occasion we had the honour to make the acquaintance of Agent Macarthur, whose kindness is already felt and highly appreciated by both staff and pupils. Inspector Chisholm accidentally dropped in for the afternoon to the great satisfaction of all present. He made a few remarks, complimenting the children on their neat and healthy appearance, and on the very pleasing manner in which they acquitted themselves in their various roles in singing, declaiming, and presentation of addresses suitable to the circumstances. Mr. Jones also expressed his sorrow on leaving the reserve, where he had made himself loved and respected by all who knew him. Needless to say that Father Paquette bade his dear Indian boys and girls a most feeling adieu, while he exhorted them through

the affection they bore him to prove themselves docile and affectionate towards their new principal. That his words sank deeply into the hearts of his interested listeners has been amply proved. To-day the conduct of the pupils towards their new principal is irreproachable. They act the part of good children towards a kind father, whom they respect, obey and love.

On Christmas the children were beside themselves with joy on receiving a very interesting visit from Santa Claus himself in person. After the midnight church offices, the children gathered in the refectory, where a most agreeable surprise awaited them, old Santa appearing in full uniform proceeded to fill rows of stockings lining the walls and really nothing could be more amusing than the scene. The children appeared most happy and grateful for the simple little presents which their teachers had worked hard to prepare for them.

I have, &c.,

O. CHARLEBOIS, O.M.I.,

Principal.

NORTHWEST TERRITORIES,
EMMANUEL COLLEGE,
PRINCE ALBERT, October 14, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

Sir,—I have the honour to submit my annual report of this school for the year ended June 30, 1904.

Location and Land.—The school is situated about two miles west of the town of Prince Albert. The land in connection therewith is a river lot, having twelve chains frontage, extending back two miles and containing about 200 acres.

Buildings.—There are three buildings occupied by the staff and pupils. The main building is occupied by the female members of the staff and the girls. The bed-rooms, dormitories and lavatory, are in the upper story, and in the lower story are the school-room, the dining-room, kitchen and pantry. There are also in this building a clothing-room, sewing-room, girls' dressing-room, and a room for cases of sickness. In the second building is a large clothing-room, a room for drugs and medicines, an office and apartments for the principal. In the third building are dormitories, lavatory, bath-room, reading and recreation room for the senior male pupils, a room for the head teacher, and a room for the outside man. The outdoor buildings are : a large house, 40 x 16 feet, and used as a granary, storehouse, and dairy ; a coach-house, 32 x 16 feet; a stable, 44 x 22 feet; two pig pens, one 22 x 12 feet, the other 24 x 14 feet ; a hen-house, 20 x 14 feet, a feed-house, 16 x 16 feet; and an implement-shed, 28 x 19 feet.

Grounds.—The ground immediately attached to the buildings is laid out so as to afford ample playgrounds for the pupils, both boys and girls.

Accommodation.—The boys' building is very old and dilapidated. The girls' dormitory in the main building is not sufficiently spacious, but these defects with sufficient outlay could be easily remedied.

Class-room Work.—The pupils attend school twice daily, with the exception of the girls, who assist in the dining-room and kitchen by turns. The school hours are from 9.30 a.m., to 12 noon, and from 1.30 p.m. to 3 p.m. Besides the regular school hours, they have study from 8 to 8.30 a.m., and from 7 to 8 p. m. The course of study is the same as that used in the public schools of the Northwest Territories. Two of

our pupils wrote at the public examinations held lately in Prince Albert and have received third-class certificates from the Department of Education, N.W.T.

The pupils are graded as follows :—

	Boys.	Girls.	Total.
Standard I.	8	5	13
" II.	8	12	20
" III.	8	1	9
" IV.	2	1	3
" V.	2	2	4
" VI.	0	0	0
" VII.	2	0	2
	30	21	51

The reserves from which the attendance is drawn are as follows :—

Ahtahkakoop's reserve.	20
John Smith's reserve.	12
James Smith's reserve.	4
William Charles' reserve.	3
William Twatt's reserve.	5
Mistawasis reserve.	2
Non-Treaty	5
	51

Farm and Garden.—Our crop last fall was as follows : 202 bushels of wheat ; 846 bushels of oats ; 460 bushels of potatoes ; 1½ tons of turnips ; 10 bushels of carrots ; 38 tons of hay, the whole of which was grown on the college farm.

Industrial Work.—All the general work required on the premises is performed by the pupils. The girls are taught all kinds of useful household work, such as sewing, knitting, making clothing, mending, darning, washing, ironing, house-cleaning and cooking. The bread used in the school is made by the girls and is baked in a portable Reid oven, which has a capacity of eighty loaves of two pounds weight.

The boys are taught the various kinds of farm work, such as ploughing, harrowing, harvesting, hay-making, carpentry, repairing of fences, attending to horses and cattle, milking cows, feeding pigs, drawing water, chopping and sawing wood, plastering, kalsomining and any ordinary work required.

Moral and Religious Training.—Morning and evening worship is regularly conducted for the whole school. On Sunday regular religious services are held in the college chapel, morning and evening. Every Sunday afternoon at three o'clock, Sunday school is held. This lasts one hour and is always a profitable hour. The children take a deep interest in the study of the Holy Scriptures, and are very fond of singing hymns. Some of the pupils play very well on the organ. A number of our pupils are communicants. The conduct of the pupils has been very satisfactory.

Health and Sanitation.—The health of the pupils has been good. Last January we had a case of typhoid fever, but apart from this one case, we have had no other illness of a serious nature. The children have as much outdoor exercise as is practicable. The dormitories, class-rooms and all other rooms are kept very clean and well ventilated.

Water Supply.—We have three wells with good water.

Fire Protection.—We have eight fire-extinguishers, which were supplied by the department ; eighteen hand-grenades, twelve fire-buckets and two axes. We carry an insurance of $5,000.

Heating.—Stoves are used in two of the buildings, but a furnace is used in the main buildings, where the girls and female members of the staff live.

Attendance.—The attendance has been very regular, and during the course of the fiscal year seven pupils were honourably discharged and eight have been admitted to the school.

Recreation.—The pupils have plenty of recreation. The boys have cricket, base-ball, football, swings and physical drill. The girls take a great deal of interest in their calisthenic corps. They enjoy dumb-bell exercise, skipping, throwing and catching the ball, swinging, reading and music. They take a walk out almost daily, attended by a female member of the staff.

We try to make the children feel as comfortable and happy as possible.

I have, &c.,

JAMES TAYLOR,

Principal.

NORTHWEST TERRITORIES,
ERMINESKIN'S BOARDING SCHOOL,
HOBBEMA, July 11, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the fiscal year ended June 30, 1904.

Location.—The school is situated on the Ermineskin reserve, a mile from Hobbema station, in the district of Alberta. There is no post office at Hobbema, but the mail is delivered every day.

Land.—The twenty acres of land in connection with the school are used as follows : three acres are taken up for the garden, five for the children's playgrounds, and the balance is used for pasturage.

Buildings.—There are three buildings occupied by the school. The main building 45 x 40 feet, three stories high, is occupied by the children. There is a school-room and refectory on the first floor; sewing-room, infirmary and boys' dormitory on the second floor, and girls' dormitory on the third floor. The second building adjoining the main building contains a kitchen on the first floor, and a chapel on the second. This building is attached to the first building by the sisters' residence, in which they have their respective rooms.

Accommodation.—There is accommodation for seventy-five children and ten sisters.

Attendance.—The attendance was forty-seven during the year; twenty-seven boys and twenty girls. We have fifty children in attendance at present.

Class-room Work.—The school hours, which are from 9 to 12 a.m., and from 1.30 to 4 p.m., are faithfully observed; besides this, the higher grades have one hour of study, that is a half hour at five, and another half hour at eight o'clock. This year has been one of application by the pupils and we are happy to state that they have improved wonderfully in all the branches of the programme as given by the department.

Farm and Garden.—The three acres of land under cultivation yielded last year, three hundred and fifty bushels of potatoes, sixty of turnips, ten of beets, fifteen of onions, a good quantity of cabbages, beans and other vegetables.

Industries Taught.—Every day some time is taker for manual work. The boys have the care of ten horses and thirteen head of cattle during the winter; they saw wood for the house, and do the sweeping in their own rooms. They have the care of the

garden during summer. The older girls are kept busy in making and mending their own clothes and that of the boys, in knitting stockings, mitts, in doing kitchen work and in learning how to keep house properly. The smaller girls also knit and do a little needlework.

Moral and Religious Training.—A certain time is devoted daily by the missionary or the professor to implant in their young hearts a respect for all social and moral duties, and we can say that the children have paid great attention to the instruction given them. Their conduct has been very satisfactory during the year.

Health and Sanitation.—Three pupils died from consumption last fall. We have had two cases of pneumonia and one of hemorrhage ; otherwise there was very little sickness in the school.

Water Supply.—Barrels and pails filled with water are constantly kept on hand. There is a trap in the upper story and ladders are permanently attached to the buildings and we have brick chimneys. These are our means of protection against fire.

Heating and Lighting.—The buildings are heated by stoves and lighted by means of lamps.

Recreation.—The pupils have their recreation after each meal under the supervision of the teachers. The amusements that we provide for them are varied, such as picnics, lunch on the prairie and promenades on the reserve. Football is the boys' favourite game in summer and skating during the winter. The girls like to play cards, croquet and have drills. These Indian children amuse themselves very much by games peculiar to them.

I have, &c.,

G. MOULIN,
Principal.

NORTHWEST TERRITORIES,
FILE HILLS BOARDING SCHOOL,
BALCARRES, August 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report on the File Hills boarding school for the fiscal year ended June 30, 1904.

Location.—The school buildings are situated on section 33, township 22, range 11, west of the 2nd meridian. They are not on the reserve, but adjoining it.

Land.—The northeast quarter of section 32, township 22, range 11, west of the second meridian, and also all that part of section 33 which is outside the boundaries of the Okanees reserve, belongs to the school, subject to the control of the Superintendent General of Indian Affairs ; in all, about two hundred and fifteen acres. The land is mostly bluffy. It is best adapted for mixed farming.

Buildings.—The buildings are : the home, a three-storied stone structure, with mansard roof, and two-storied frame addition, a frame laundry, frame school-house, a good log stable with shingled roof, a log granary and carriage-house, and a root-house.

Accommodation.—In the home there is good accommodation for twenty-five children and a staff of four.

Attendance.—The attendance has been very regular. The number on the roll, minus non-treaty children, is fifteen. A larger number could be secured.

Class-room Work.—The class-room work has been good.

Farm and Garden.—This branch of the work has been receiving more attention than ever before. We have in crop about eight acres of oats, and four and three-quarter acres of garden, including turnips and potatoes. Two of the boys broke five acres of new land and were still working at it at the close of the fiscal year. Also the boys, with the assistance of the farm instructor, put up two hundred and seventy-five rods of two, and three strand wire fencing and thirteen rods of rail fencing.

The school now owns six milch cows, five calves, a good three-horse team, some pigs and some hens.

Apart from the training at the school, received in farming, each boy when he is sixteen or seventeen years old is allowed to choose for himself a farm in the colony that Inspector Graham has started for ex-pupils, and to put in on it, under the supervision of the government farm inspector, one or two summers' work. In this way by the time a boy leaves school he has made a very good start towards making a home for himself and also has an opportunity of getting acquainted with, and adapting himself to, the circumstances under which he will be labouring after he receives his discharge. I find this an excellent plan. The boy is aiming at something definite. The strongest inducement I can offer our boys to encourage them to do well is to promise them that when they prove themselves trustworthy, they may go out and work on their own farms.

Industries Taught.—The girls are taught to be clean, neat, economical housekeepers and home-makers. This includes bread-making, butter-making, fine baking, sewing, washing, ironing, and dainty decorating of rooms.

The boys are taught to be good practical farmers and gardeners. They are trained to handle and properly care for stock and to do general chores both outside and in.

Moral and Religious Training.—These subjects receive special attention. The Bible is carefully studied and memorized and the child is trained to base his ideas of right and wrong on its teachings. There is religious instruction daily.

Health and Sanitation.—The health of the children has improved wonderfully. There have been no scrofulous cases worth mentioning all winter and spring. There are several reasons for this : improved accommodation, the dormitories heated by a furnace, less confinement in the class-room, and largely vitae ore, a medicine which I was trying as an experiment and which helped our children wonderfully. It used to be that almost fifty per cent of the children in this school had to go round with their heads bandaged on account of open scrofulous sores, now there is not one. There have been no deaths during the year.

Water Supply.—We have a good well. The water is drawn from it into the kitchen by means of a pump.

Fire Protection.—We have ladders, two Babcock extinguishers, four fire-axes, eleven fire-pails, and water always convenient. There are two ways of escape from every sleeping-room.

Heating and Lighting.—One furnace and four stoves are used for heating the buildings. Coal-oil lamps are used for lighting purposes.

Recreation.—The children enjoy the ordinary outdoor sports and games ; various games in the home are introduced during the long winter evenings.

Ex-pupils.—We feel greatly encouraged with the progress of our ex-pupils. As yet only seven young people have left this school. One of these is dead. He and two others, Fred. Dieter and Ben Assineawasis, spent eighteen months at the Regina industrial school after leaving this school.

To be in a position to give the following report on the six who are living, gives me great pleasure. Fred Dieter married Mary Belle Cote, a Regina school graduate, over a year ago. Their house, their garden, and their farm are a great credit to them both.

Ben Assineawasis and Maggie Pratt, one of our own girls, were married last spring. Their home is a model of neatness. Both upstairs and downstairs are always

open for inspection. Mrs. Assineawasis deserves great praise for her home-making abilities. They, too, have a good farm.

Roy Keewatin, who was discharged last spring, will harvest this fall a good crop of wheat of about twenty-five acres. This is land which he prepared last year while still in school. He has done considerable breaking this year too. He is showing himself to be a steady industrious man. The other two ex-pupils are girls.

Fanny Ross is a member of the school staff. She occupies the position of cook. She is faithful, trustworthy and capable.

Winnie Akapew is a cripple and very delicate. She has to make her home with the older Indians ; but although unable to work, we consider Winnie as great a success as any one who has left the school. To stand by her colours in her surroundings means far more moral courage than any of the other pupils have been called upon to exercise. She is always neat and clean. We have six ex-pupils and not one of them is a failure. We do not take all the credit for this. Inspector Graham's system, in his colony, deserves a very large share of it.

I have, &c.,

KATE GILLESPIE,

Principal.

NORTHWEST TERRITORIES,

GORDON'S BOARDING SCHOOL,

KUTAWA P.O., July 2, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit my annual report of the Gordon's boarding school for the fiscal year ended June 30, 1904.

Location.—The school is located on the west side of Gordon's reserve about twelve miles from the agency headquarters.

Land.—The area of land in connection with the school is three hundred and twenty acres, and comprises the east half of section 4, township 27, west of the second principal meridian. This, I believe, has been allotted to the school by the government.

Its natural features are prairie, very hilly, with some sloughs, and about twenty-five acres of tillable land, but no wood; the above is suitable for pasture.

Buildings.—The main building is the same as last year, and is used for school purposes. A new floor has been laid in the school-room, lavatories and class-room.

All outbuildings are the same as given in last year's report.

Accommodation.—There is ample accommodation for thirty-five pupils, and four of a staff.

Attendance.—The attendance has been very good during the past year.

Class-room Work.—The pupils' course of work is that laid down by the department, and a great improvement is noticeable, especially in the speaking of English, which is our great aim with the pupils.

Farm and Garden.—We do not farm, but our garden consists of about three acres. An abundance of vegetables was raised, of every description. We have also a beautiful flower garden and this is the delight of the children.

Industries Taught.—The boys are taught the care of horses and cattle, poultry, and pigs, and milking, and gardening in summer. The girls are taught all household

duties, butter-making,and the care of same. I cannot speak too highly of their work and proficiency.

Moral and Religious Training.—Very careful attention is paid to the pupils in this respect. Their moral conduct has been excellent during the past year, and in no case had severe punishment to be administered.

Health and Sanitation.—The health on the whole has been fair. We had two or three cases of pneumonia, and a case of scrofula, the latter is now home. No deaths have occurred during the past year.

The sanitary condition is all that can be desired. The building is well ventilated and kept very clean, and I may say the children take a pride in helping to keep it so.

Water Supply.—Our water-supply is obtained from a well, about three hundred yards from the school. The new well which was put down last summer had to be put on the same water-course as the old ones. We have a good supply of water, but a long way to haul it. As a rule we always have an abundance of soft water.

Fire Protection.—This consists of one Babcock, two Carr chemical fire-engines, one pump, two lengths of hose, eleven buckets, six axes, sixteen hand-grenades, two tanks, nine fire-extinguishers, besides several barrels.

Heating and Lighting.—The building is heated with wood stoves. Lighting is done with lamps and coal oil.

Recreation.—Football and swings are the favourite pastimes during the summer months. Coasting in winter, and many games in the school-room are enjoyed by the pupils.

I have, &c.,

M. WILLIAMS,

Principal.

MACKENZIE RIVER DISTRICT,
HAY RIVER (ST. PETER'S MISSION) BOARDING SCHOOL,
Care of HUDSON'S BAY COMPANY,
HAY RIVER, *via* EDMONTON, ALBERTA, December 10, 1903.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to report that the above-named boarding school in connection with the Church of England, of which I am in charge, is located at the mouth of Hay river, on its east bank, and on the southwest shore of Great Slave lake, within the limits of Treaty No. 8.

It is not on a reserve, but in the unorganized Territory of Mackenzie river under the supervision of the Northwest Mounted Police.

Land.—We have already under cultivation about eight acres of crown lands, adjoining the Indian village of Hay River. The soil in the immediate vicinity is flat alluvial deposit on a bed of sand, and is adapted for agriculture. A varied growth of timber extends all round us.

Buildings.—We have the following buildings :—

(1.) A large dwelling-house used as a boarding school composed of three parts successively erected, the last being three stories high, the whole constructed of logs and boards, containing eighteen rooms.

(2.) A workshop, fitted up for carpentering and blacksmithing and containing a complete saw pit.

(3) and (4.) Storehouses, in which are kept clothing, provisions and supplies.
(5.) Wood-shed.
(6.) Fish-house, in which our daily supply of fish is cleaned.
(7.) Cattle byre.

A church, and new dwelling-house were begun this fall, and are in course of construction; a great part of the material, consisting of hewn logs, and metallic shingles, being already provided. We intend to push these two buildings, as they are much needed, as quickly as possible, considering all boards have to be sawn and dressed by hand.

Accommodation.—Our institution is a mission home and school, the age of the pupils ranging from three to eighteen, though we occasionally receive widows and others as mission helpers under instruction. We have accommodated as many as fifty-four souls under our roof, of whom forty-one were pupils, eight engaged mission helpers and five native workers. Our numbers have been very much reduced, owing to the sad ravages of measles, which broke out in the far north, and swept south through this whole district, in the summer of 1902, carrying away many, and leaving the survivors constitutionally weakened so that its effects are still severely felt, although the epidemic itself has long since passed.

The attendance of scholars was upon June 30, 1902, twenty-one boys and twenty girls, and on June 30, 1903, fifteen boys and eighteen girls, and is at present thirteen boys, and fifteen girls, that is a total of twenty-eight regulation boarding pupils, besides one infant, and five native workers under instruction, as well as a few occasional day scholars, who are exceedingly intermittent in their attendance.

Class-room Work.—The subjects taught from time to time in our institution have included reading, writing, arithmetic, composition, grammar, geography, dictation, literature, history, and Holy Scriptures, as well as occasional lessons in the reading of their own native language, both as written in the syllabic and Roman characters. It is interesting to note that the pupils are all making good progress in their English studies, and are disposed to be more teachable, and less troublesome than the same number of white children. The hours generally speaking are the same as in Ontario public schools, except in the very shortest days of winter, when lack of daylight necessitates shortening them a little for about a month.

Farm and Garden.—The farm produce consists chiefly of a large crop of potatoes, which yielded this year five hundred and thirty-five bushels and a little barley, estimated at about twenty bushels not yet threshed. The garden simply represents a small piece of land fenced separately, in which we grow cabbages, cauliflower, beets, carrots, parsnips, onions, radishes, lettuce, peas, and beans, chiefly for the benefit of the staff. Much of the work, both of the garden and farm, weeding, &c., is done by the school children under instruction. Our hay-supply is derived entirely from natural grass, found along the river bank. We have at present two cows, one bull, two two-year-old heifers, and a spring bull calf. We train our cows, and utilize them with the bull, for hauling purposes, thereby saving the unnecessary keep of oxen, and we find them very satisfactory. We also keep on hand for winter work such as fishing, meat hauling, and tripping, connected with our work, two or three teams of dogs, fourteen dogs being our number at present.

While out on furlough this past year, I secured at considerable expense and trouble and as a personal venture of my own, a litter of small pigs, half a dozen barn yard fowls, and three cats, from which I hope to derive profitable returns, although they are entirely new in this part, the pigs at least being the only ones north of the Peace river.

Industries Taught.—We have no stated industries taught, but it is our aim to teach each one under our care to be thorough, industrious, and practically useful. Occasional lessons are given in the use of carpentering and blacksmithing tools when the pupils are old enough for such. The general work on the farm, and about the

establishment affords ample opportunity for training both boys and girls to be industrious.

Moral and Religious Training.—We teach all the pupils to the best of our ability, obedience, diligence, straightforwardness, and frankness, and endeavour generally to develop in them the moral qualities based upon the religion of the Old and New Testaments, all our training being under the superintendence and inspection of the bishop of the diocese.

Health and Sanitation.—Prior to the epidemic of measles in 1902, spoken of above, the health of the pupils was very good, but since then there has been considerable sickness among them and eleven have died either of that disease or of lung trouble. We fill up our water-closets yearly, and make new ones, and we throw away the slops and refuse far from the house at a safe distance, so as to keep the yard clean.

Water Supply.—We derive our supply of water for household use from the river, close in front of the house, and it is always good.

Fire Protection.—We keep four barrels of water constantly in the house, and have ladders reaching to all the roofs, twelve axes and six buckets available in case of fire.

Heating and Lighting.—We heat the main building, No. 1, with seven stoves, using spruce wood, which is abundant and good, and light it with paraffin candles, and coal-oil lamps, the latter for the use of the staff.

Recreation.—We encourage the school children to play games in their hours of recreation, especially football, baseball and boating, and permit the older boys to hunt small game in the surrounding bush, and snare rabbits.

Food Supply.—We obtain the greater part of our food-supply from local sources, setting nets in the lake nearly all the year, and are never without fish on the tables, these with potatoes constituting our main diet; what little meat we eat, we get occasionally from Indian hunters, but this year rabbits have been unusually plentiful. The remainder of our provisions, consisting of flour, meal, tea, &c., is annually imported a year or eighteen months ahead, at the expense of the Bishop's Diocesan funds. None of the pupils at present pay their board.

Clothing.—The school children are clothed principally out of the mission bales voluntarily contributed by various branches of the Woman's Auxiliary of the Church of England through the eastern part of Canada; and here I beg to thankfully acknowledge the liberality of the department in assuming the (to us) very large cost of the transport of these bales.

Mail Facilities.—Our mail system is not such as to enable me to send this report by the time desired, the winter packet, which leaves here for the south by dog train, on or about December 10, being the first I have been able to avail myself of since I received the circular calling for my report. The Hudson's Bay Company carries our mail twice a year, in summer, and again in winter, to and from the farthest northern post office on the Athabasca river.

General Remarks.—It may be of interest to bear in mind that our children are chiefly drawn from remote parts, and have to remain with us throughout the entire year, so that we have to find recreation and employment for them during the holiday seasons, which adds greatly to our own labour, and ties us incessantly to our post. Our nearest neighbouring hamlet, or trading post, is eight miles distant. Owing to our exposed situation, fishing is precarious and often dangerous. Game is generally scarce, although this year rabbits abound. The nearest physician is more than 1,000 miles away by direct travel. Our only means of locomotion are by boat or canoe in summer, and dog-sled in winter. Our climate is severe, the temperature often falling for days at a time to forty degrees below zero Farenheit, while occasionally it drops to fifty-five and sixty degrees below zero. Our summers are delightful except for mosquitoes. The season is very short, but incessant daylight for nearly six weeks gives us doubly quick growth. We beautify our surroundings with flowers which grow luxuriantly, and take us back in heart and thought to the realms of our home land.

Finance.—In closing I may say that I am not in a position to present a financial statement, as the funds of our mission all pass through the hands of our bishop, our outside supplies being secured chiefly in Winnipeg.

I have, &c.,

THOS. J. MARSH,
Principal.

NORTHWEST TERRITORIES,
HOLY ANGELS BOARDING SCHOOL,
NATIVITY MISSION, FORT CHIPEWYAN,
ATHABASKA LAKE, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I take pleasure in sending my fourth annual report on matters concerning the school and I greatly hope that it will reach the department at the appointed time, this year.

Location.—The Holy Angels boarding school is located at Nativity Mission, quite near Fort Chipewyan.

Built on the bank of Athabasca lake, our school possesses a fine view of the lake, in front, although it has on every other side the modest prospect of rocky hills partly covered with pine-trees.

This school belongs to the Roman Catholic mission and is under the direction of the Sisters of Charity, commonly called 'Grey Nuns.' There is no post office here; neither are there any reserves in this part of the north.

Land.—The soil is rocky and almost barren in some places ; however, a few acres can be found that are susceptible of being cultivated, but as a general rule, the soil has a very scanty vegetation. One of the pioneer missionaries, Right Reverend Bishop Farand, wishing to cultivate a small piece of land and finding no place to suit the purpose, set to work and drained out the lake himself. After many weeks of hard toil, he succeeded in making a field of fifteen acres. This field admits of the cultivation of barley and potatoes, which grow well enough, when the crop is not destroyed by the frost and are our great resource, for they provide us with sufficient potatoes for daily consumption, throughout the year. Our kitchen garden yields about one hundred head of cabbage, a few bushels of turnips, onions and carrots; these vegetables thrive poorly in such unfruitful soil as we have here.

Buildings.—The old building is undergoing repairs just at present, having basement renewed, &c. As a few changes are also to be made as well in the two new wings, I shall not enter into any details nor give the dimensions this year.

Accommodation.—Accommodation can be provided for sixty pupils, seven sisters and six auxiliary or lay sisters.

Attendance.—School is kept regularly except on holidays ; the children are, for the greatest part, good and quite manageable in and out of class. It is a very rare case which obliges us to inflict any kind of corporal punishment. Desertions very seldom occurs here.

Class-room Work.—The subjects taught are : reading, writing, grammar, composition, arithmetic, geography, history and ethics. Vocal music and calisthenics are also on the programme they are a great means to afford variation during work and to improve physique.

Farm and Garden.—The children weed the garden and help in whatever little work they can do on the farm.

Industries Taught.—The girls are taught domestic economy, they soon become proficient in sewing, knitting, darning and embroidery. Cooking lessons are also given, in fine all endeavours are used to teach them how to become clean and orderly housekeepers. The boys daily task is to saw and chop the wood required for fuel.

Moral and Religious Training.—The pupils assist at divine service given in our chapel every morning, and they attend the Mission church every Sunday. The reverend father in charge instructs them in their religious duties. Great care is taken to instil in those young hearts that knowledge and love of duty towards God and man which makes the practical Christian.

Health and Sanitation.—I am happy to state that our children's health is thoroughly satisfactory ; the sanitary condition of the school premises is very good.

Water Supply.—Our supply of water is drawn from the lake.

Fire Protection.—The fire-appliances on hand are a force pump with hose, ladders, buckets and axes.

Heating and Lighting.—Wood is used for fuel ; coal oil for lighting.

Recreation.—The children indulge in outdoor games every day, when the weather is fine. Little trips are taken now and then, in skiffs or on board the Mission steamboat, when the lake is calm. One of the many islands that dot the lake is our picnic resort in summer. During the cold season a long walk taken every day, proves beneficial to health, and is quite invigorating. The children delight in this healthy exercise.

I should be pleased indeed to inclose herewith a few photographs. I greatly hope that I shall have a selection on hand next year.

I have, &c.,

SISTER M. McDOUGALL.

NORTHWEST TERRITORIES,
LESSER SLAVE LAKE C.E. BOARDING SCHOOL,
ATHABASCA, August 24, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to forward my annual report on the Lesser Slave Lake Church of England boarding school for the year ended June 30, 1904.

Location.—The school faces south, being situated about a mile from Buffalo lake, over which it looks. Buffalo lake is joined, by the Heart river, to Lesser Slave lake proper, the latter is about six miles from the mission. The Heart river passes within half a mile of the school, emptying into the lake.

Land.—This mission is not situated on a reserve. The land was surveyed during the summer of 1901, and contains about ninety acres, and is the property of the Church Missionary Society. It consists of bush and prairie ; the soil is a sandy loam, well adapted for all kinds of agricultural purposes.

Buildings.—The girls' home, 24 x 30 feet, the ground floor of which is divided into the children's dining-room, matron's sitting-room, and sitting-room for the teacher and his wife ; (the latter being matron for the boys) the matron's bed-room and girls' dormitory on the upper floor. There is a kitchen adjoining, 15 x 18 feet.

The boys occupy a new wing, which was added to the original building in the year 1900, its dimensions are 32 x 34 feet ; the ground floor is used as a school-room and boys' day-room ; the upped floor as boys' dormitory and teacher's bed-room.

The other buildings consist of a fish and ice-house combined, with a school store-room above ; a root-house, and implement-shed, stables, old storehouse, with clothing room above, and two closets.

Accommodation.—There is room for fifty pupils and four of a staff.

Attendance.—For the three quarters, ending December, 1903, March, June, 1904, we had a daily school average of thirty and a half, thirty and a half anr thirty-one and a quarter, respectively. During the year we had sixty pupils on the roll.

Class-room Work.—English, reading, writing, arithmetic, geography, general knowledge, ethics, recitation, vocal music, cooking and religious instruction are taught in the class-room.

Farm and Garden.—The boys assist in the farm and garden work. This year we have under cultivation about twelve acres of oats, four acres of barley, and one and one-half acres of roots, consisting of potatoes, turnips and mangolds. There is also a garden of about half an acre, well stocked with vegetables of the various kinds.

Owing to the great drought this summer, the grain and root crop will be light; the best oats will be gathered from five acres which were broken and sown this spring. Considering the unfavourable season the garden is exceptionally good. Milch cows, horses, pigs and fowls are kept at the mission.

Industries Taught.—Agriculture is the only industry taught.

Moral and Religious Training.—The training imparted in this respect is carried on along Church Missionary Society lines.

Health and Sanitation.—There are two closets, one for boys and one for the girls. During last winter we were very free from sickness in the home.

Water Supply.—During the summer, water is brought from the river by means of a water cart ; ice and snow are used in winter.

Fire Protection.—This consists of two ladders ; one attached to the roof of the kitchen, and the other to the roof of the home.

Heating and Lighting.—All the buildings are heated by box stoves, wood being the fuel used. The home is lighted with coal-oil lamps.

Recreation.—The principal recreation of the pupils consists of football, baseball and indoor games.

General Remarks.—All the land owned by the mission is inclosed within a fence, about half of which is of wire. The posts are twelve feet apart, with a top rail, and four strands of wire.

I have, &c.,

C. D. WHITE,

Principal.

NORTHWEST TERRITORIES,
LESSER SLAVE LAKE (ST. BERNARD'S) R.C. BOARDING SCHOOL,
LESSER SLAVE LAKE P.O., June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the annual report of the Lesser Slave Lake (St. Bernard's) Roman Catholic boarding school for the fiscal year ended June 30, 1904.

Location.—The situation of the school on the northeastern bank of Lesser Slave lake is both pleasant and healthful. It stands on a slight elevation which slopes towards the water and the setting sun, and commands a good view of the surrounding

St. Albert Boarding School, near Edmonton, Alta. [353]

country. As this location necessitated levelling part of the forest, the site happens to be quite bordered by woodland, which makes a pleasant resort for the children during the warm weather.

Land.—The area of land connected with the school is about nine acres and belongs to the mission.

Buildings and Accommodation.—The main building, 72 x 28 feet and three stories high, is a large and commodiously apportioned dwelling, containing fourteen compartments, six of which serve for the girls as recreation-hall, dining-room, sewing-room and dormitories. The remaining apartments, excepting the chapel and kitchen, are occupied by the staff.

To the right and a little in the rear is the boys' house, a two story building, 60 x 25 feet, which will accommodate forty pupils. The first floor is partitioned off into recreation-hall, dining-room, and a class-room for smaller pupils. The sleeping apartments are on the second floor.

The school-house, which is 30 x 24 feet, also to the right of the main building, but extending forward, is three stories high. It comprises two cheerful well lighted class-rooms, the upper floor being used as a store-room.

Spacious and well-kept grounds surround the three buildings, and flower-beds, which add greatly to the general appearance of the place, are laid out and carefully attended to by the pupils under the direction of the teachers. A commodious building was erected this spring, to serve as a laundry, and a place for the storage of fish, and a canal was dug for drainage purposes.

Attendance.—The average attendance was from thirty to forty pupils. Some of these entered in September and left at the end of June ; a few remained during the summer months.

Class-room Work.—The school hours are from nine to eleven o'clock in the morning ; the afternoon session from one to four, being interrupted by a school recess. Three teachers were engaged with the pupils and in order to gain attention, took great pains to make their lessons interesting and instructive. Most of the pupils applied their minds arduously to their studies and visible progress was made. A marked improvement was noticed in their pronunciation last year, which was undoubtedly due to careful exercise in class recitations.

The children like to appear before strangers and several opportunities of displaying their capacity was afforded them during the term, the chief among them being their annual entertainment, which was as usual, tendered to the public at New Years.

The programme of studies laid down by the department was carefully carried out by the teachers.

The grading of the pupils is as follows :—

	Pupils.
Standard I	15
" II	11
" III	8
" IV	2

Industries Taught.—When the girls have reached a proper age, they are taught the culinary art, washing, ironing, sewing, dressmaking, in a word, all that can contribute towards making them competent housekeepers.

The larger boys are trained to work on the farm, while the younger ones are kept busy weeding the garden, carrying wood and doing other light work about the house.

Moral Training.—The moral and religious training is based on the pure and unsullied doctrine of the Holy Scripture. A half hour daily was given to religious instruction, while to make certain that the moral education was carefully attended to, the pupils were kept continually under the supervision of one of the teachers.

Health and Sanitation.—There are no deaths to be recorded this year. Although considerable sickness prevailed in the neighbourhood last winter, no disease was contracted at the school, excepting influenza.

Water Supply.—Very good water is supplied by wells dug close to the house.

Fire Protection.—These wells, ladders and a hose are our only protection against fire.

Heating.—The principal building is heated by a hot-air furnace, which gives good satisfaction. The chief advantage of this mode of heating is the even temperature produced throughout the entire building.

The other buildings are heated by stoves, in which we burn pine, spruce, poplar and birch. The surrounding forests abound in trees of this kind.

Recreation.—The boys and girls have large playgrounds leading off their respective departments, where they enjoyed themselves during the different seasons at all the games and sports common to their ages. The girls' playground was enlarged during the year and inclosed by a neat picket fence.

The Roman Catholic mission has a small steamboat for the purpose of visiting the different bands along the lakes and for conveying pupils to and from school. The children are occasionally favoured with an excursion. By attaching two large boats to the steamer, all the children may be taken at the same trip. The government grants yearly, $72 per capita for each of forty pupils.

I have, &c.,

C. FALHER, O.M.I.,
Principal.

NORTHWEST TERRITORIES,
MUSCOWEQUAN'S BOARDING SCHOOL,
TOUCHWOOD HILLS, ASSA., June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report on the school under my charge for the fiscal year ended June 30, 1904.

Location.—The Muscowequan's boarding school is situated about twelve miles from the Touchwood agency and three miles from the Touchwood post office. It is outside of the reserve.

Land.—The land connected with the school is a homestead of 160 acres, situated on the northwest quarter section 14, township 27, range 15, and belongs to the society of the Oblate Fathers. In front of the school on the slope of the hill there is a large garden surrounded with trees. This pretty site gives the best appearance possible to the buildings. On one side of the school is a nice parterre, also surrounded with trees. The soil is of the best quality, any kind of grain and vegetables growing well. Forty acres are under cultivation, besides the garden. The crop of wheat, oats and barley looks fine. Everything was put in, in due time and in good condition. I must say that when the inspector made an inspection of the reserves lately, he was highly pleased with the work done and the appearance of the crop. I hope to have the pleasure in my next report to announce a good increase of land under cultivation, as breaking has been going on for several weeks.

Buildings.—The school buildings include the old church, which now serves as a school-room, and a new stone house erected four years ago. The basement comprises a large cellar, part of which is used as a root-house and a dairy. On the first floor is a kitchen, a small room for bake oven, a pantry, refectories for sisters and pupils, two smaller rooms for visitors and a chapel where pupils assemble for morning and evening prayers. On the second floor is the girls' dormitory, sewing-room, play-room

and sisters' apartments. There is also a large and comfortable attic. The other part of the building, forming an angle with the first, contains, on the first floor, the class-room and music-room; on the upper floor is the boys' dormitory. The other buildings consist of the principal's house, the boys' play-room, the carpenter's shop, small granary and stables.

Accommodation.—The school has ample accommodation for at least forty pupils and a staff of seven persons.

Attendance.—Thirty children attended school during the year.

Class-room Work.—Classes are taught in the morning and in the afternoon. School hours are from 9 to 12 a.m. and from 2 to 4 p.m. The programme laid out by the department is strictly enforced. Much attention is paid to correct English conversation, writing, reading, arithmetic, spelling, drawing, geography, grammar, vocal music and composition. Satisfactory progress has been noticed during the past year in all the above mentioned subjects. The children seem to have a special liking for arithmetic and drawing.

Industries Taught.—The girls are trained in all branches of domestic work: baking, cooking, laundrying, sewing, knitting, dressmaking, rug-making and darning. All the children's clothing is made in the school. Gardening, farm work such as ploughing, harrowing, sowing, cutting hay and grain, fencing, stable work and cutting and carrying wood, form the principal occupations of the boys.

Moral and Religious Training.—Great care and special attention is given to this part of the education and no effort is spared to instruct our pupils thoroughly in principles of faith and religion. The greatest possible vigilance is taken over the pupils and I must say, it is a great satisfaction to the staff to notice such charitable feelings towards one another. The moral conduct has been excellent.

Health and Sanitation.—Last winter, there was an outbreak of scarlet fever. All the pupils contracted the disease and we had the misfortune to lose one. But since then they have been better and stronger than ever.

Water Supply.—Water is supplied to the school from three wells, two of which are on the premises near the school and one in the cellar, from which water is drawn by means of a force pump which conveys the water to a tank fixed near the roof of the building, from which the water-supply is distributed by means of iron pipes to the different parts of the main building.

Fire Protection.—The school has been provided by the department with two Babcocks, twelve fire-pails, which are always kept filled with water; fire-extinguishers and axes. All these are put in convenient places through the buildings. There is besides the two force pumps, a sufficient quantity of hose for proper working in case of fire.

Heating.—The building is heated by eleven stoves using fire-wood.

Recreation.—In winter the pupils are supplied with different games, music, singing and as much outdoor exercise as possible. As a rule they enjoy a good ride once a week, occasionally they have an extra ride going for the mail. In summer months the boys take great interest in ball games, gymnastic exercise, swings and in all kinds of foot races. The girls enjoy playing games of their own and music, of which they are very fond.

General Remarks.—In conclusion, I am pleased to have this opportunity to offer my most sincere thanks to our devoted inspector, Mr. W. M. Graham. His kind advice and great encouragement to the pupils will, I am sure, bear their fruits. Such a visit cannot but have a good effect on the pupils and I pray it may be often repeated. Mr. Graham will always be most welcome at the school. I am also very much indebted to our agent, Mr. H. Martineau, for his earnest co-operation in matters connected with the school.

I have, &c.,

J. A. MAGNAN,

Principal.

NORTHWEST TERRITORIES,
McDOUGALL ORPHANAGE AND BOARDING SCHOOL,
MORLEY P.O., ALTA., June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my sixth annual report on the above school for the year ended June 30, 1904.

Location.—The school, with the land attached thereto, is situated on lot eight, Belanger survey, Morleyville Settlement, near the confluence of the Bow and Ghost rivers and about four miles east of the eastern boundary of that part of the Stony reserve, north of Bow river.

Land.—The land owned by the school consists of the grant given by the government, comprising one thousand one hundred and thirty-seven acres. The quality of the land is poor, and not much adapted to cultivation, being mostly of a gravelly nature, and is almost exclusively used for grazing purposes.

Buildings.—The main buildings are frame on stone foundations, and consist of two wings, one of which, 38 x 44 feet, was erected in the fall of 1890 and the other 26 x 40, erected in the fall of 1900. The basements of these buildings are used as recreation-rooms in winter-time.

The school-room is also a frame building, 25 x 35 feet, on stone foundation, and well ventilated, situated on the hill about one hundred and twenty-five yards north of the main buildings.

Accommodation.—There is good and ample accommodation for forty pupils, and eight members of staff.

Attendance.—The attendance for the year has been very good, and more pupils than the rule of health would allow, have been present. We could secure a number of additional pupils, if we had more accommodation.

Class-room Work.—The progress in this department is most satisfactory. The children under faithful management have made great progress and too much cannot be said in favour of their discipline in the school-room.

Farm and Garden.—Owing to our nearness to the mountains, agricultural pursuits cannot be made a success, but we have about forty acres under cultivation, and succeed in raising good crops of green feed, which is used as fodder for stock.

Industries Taught.—The boys are taught in the various branches of ranching, teaming, fencing, ploughing, mowing, milking and the care of stock in general, and have performed their duties very faithfully and satisfactorily. The girls are taught efficiently in the various branches of housekeeping: sewing knitting, mending laundry and dairy work, and give good satisfaction in these various departments.

Moral and Religious Training.—We have tried in every way possible to teach these children in the faith in which we believe, and have been encouraged and had 'signs cheering.' Religious exercises as follows : morning and evening prayers together with Scripture, reading and singing ; Sunday—service at 10.30 a.m., Sunday school, 3 p.m., Sunday evening, song service, 7.30 p.m. The morals are highly commendable and cases of truancy and corporal punishment are indeed few and far between.

Health and Sanitation.—The health of the children has been steadily improving for the last three years. Dr. Lafferty has answered very promptly to our calls, and prescribed in every necessary case.

The sanitary condition of the school is improving every year.

Fire Protection.—The fire-protection consists of four Babcock fire-extinguishers and twelve grenades.

Water Supply.—During the past year a water-supply has been brought from the spring on lot 7, into the building, giving us one tap in the kitchen and one in the laundry.

Heating and Lighting.—The main buildings are heated by two furnaces (one of which is out of repair) and wood-burning box stoves. The whole school is lighted with coal-oil lamps.

Recreation.—Sufficient time is allowed the boys and girls for recreation, as we find that the rule of health demands this.

General Remarks.—I am very pleased to say that the parents of the pupils have been very loyal to us in our work, and helped us in every way possible, as also the government and church representatives. Agents H. E. Sibbald, and T. J. Fleetham, have done all they could in every way to advance the interests of the school.

I have, &c.,

JOHN W. NIDDRIE,

Principal.

NORTHWEST TERRITORIES,
ONION LAKE R.C. BOARDING SCHOOL,
ONION LAKE, SASK., July 16, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report on the Onion Lake (St. Anthony's) Roman Catholic boarding school at Onion lake, for the year ended June 30, 1904.

Location.—The school is situated on Seekaskootch reserve, about twelve miles from Fort Pitt, on the north side of the Saskatchewan river.

Land.—About seven or eight acres of land are fenced in and set apart for school purposes, buildings, gardens, playgrounds, &c. The land belongs to the Indians of the reserve.

Buildings.—The school is a frame building, 45 x 35 feet, three stories high and is used exclusively for the pupils. Another building, 25 x 20 feet, is the sisters' residence, and to this is attached the kitchen and pantries. The other surrounding buildings are a storehouse, laundry, bakery, ice-house, hen-house and stable.

Accommodation.—There is ample accommodation for sixty pupils and a staff of ten, but a class-room for the junior pupils and a boys' recreation-room are greatly needed.

Attendance.—The average attendance during the year has been fifty. There have been seven admissions and seven discharges, of the latter two were transferred to Dunbow industrial school, two died, one was married and the other two went home to help their parents.

Class-room Work.—Two teachers are in charge of the different standards, in separate rooms. The junior class occupies the dining-room, which is very inconvenient. The programme of studies laid down by the department is faithfully followed. The class work is done neatly, with application and emulation. Half an hour each day is given to singing. The pupils form the choir of the church and are considered very good; they sing Latin, English and Cree.

Health and Sanitation.—There is nothing lacking in the attention paid to the sanitary condition of the school, good ventilation, disinfectants and plenty of outdoor life. Two pupils died at home during the year; one from grippe, the other from consumption.

Water Supply.—Plenty of good water is supplied from a well a few yards from the school.

Fire Protection.—One well, ladders, galleries, pails, axes, and barrels of water are kept in readiness. Outside fire-escapes will be put up during the summer.

Heating and Lighting.—The buildings are heated with stoves and lighted with coal-oil lamps, which are suspended from the ceiling, in the pupils' apartments.

Recreation.—The pupils have an hour's recreation three times each day, during which they indulge in all kinds of amusements. The boys and girls have each a large cradle-swing, tennis, croquet, football, &c. They are very fond of reading and prefer it to any other amusement.

I have, &c.,
E. J. CUNNINGHAM. O.M.I.,

NORTHWEST TERRITORIES,
ONION LAKE C.E. BOARDING SCHOOL,
ONION LAKE, SASK., July 16, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

Sir,—I beg to submit the annual report of the school under my charge for the year ended June 30, 1904.

Location.—The school is situated on the northeast corner of Makaoo's reserve and about three hundred yards southwest of the agency headquarter buildings.

Land.—There are perhaps twenty acres of land connected with this school and mission; this land being part of the reserve.

Buildings.—The school-house is a new building not quite finished, 30 x 40 feet, three stories high. The lower floor of this building when finished will be divided into two class-rooms. The second floor will be partitioned into rooms for the staff, and a room for any of the boys who may be sick or suffering from any non-contagious, or non-infectious disease. The third floor will be one large dormitory without partitions. Great care has been taken in the ventilation and lighting of this building. We have been using the lower floor as a school-room since April, 1903. The building originally used for a school is now used only as dormitories, laundry and boys' bath-room. Nearby is a storehouse some 15 x 20 feet, with a garret for storing clothes. Provisions, beef, fish and game are stored on the lower floor. The buildings which form the quarters of the staff and of all the girls of the school are some six in number, put up at different times, but all connected; any one of the four outer doors gives entrance or egress to the whole building, which is about 60 feet square. On the lower floor of this building are the principal's office, Indian room, pantry, kitchen, dining-room, store-room, two bed-rooms and a dispensary. All the upper floors are used as bed-rooms for the staff and dormitories for the girls; the dormitories for the girls occupy one flat, 24 x 36 feet, without partitions, and another, 20 x 24 feet, likewise without partitions. A building, 20 x 20 feet, two stories high, has been added to the buildings occupied by the staff; this addition forms the quarters of the ladies comprising the staff, and leaves the girls' dormitories unobstructed by any partitions, and

places the rooms of the staff in such a position that they have at all times entire command of the dormitories. There is a cellar, 20 x 30 x 7 feet. Our stables have been enlarged and finished till now they are second to none in the place.

Accommodation.—Accommodation can be provided for seventy pupils and also for a staff of eight.

Attendance.—All the children being kept in the school, the attendance has been perfectly regular except in rare cases, when a child would be sick.

Class-room Work.—Very marked progress has been made in class-room work during the past half year, especially is the improvement noticeable in reading, writing, arithmetic and English-speaking.

Farm and Garden.—Our farm-land now extends a trifle over three acres. We raise vegetables and root crops enough to supply our whole household. The work is almost entirely done by staff and scholars.

Industries Taught.—The boys are taught carpentry and house-building, chiefly. They also have the care of horses and poultry, as well as the care of the cows, milking and the working of the cream separator is also part of their work or duties. We also have a few hens, and the care of these forms part of their work. Girls are taught knitting, sewing, cooking and general housework and the making of butter and cheese.

Moral and Religious Training.—To this part of their education particular care and attention is paid. Each one of the staff fully recognizes that without careful moral religious training all the other training is simply wasted or even worse. We do not aim to teach them the tenets of any particular church, preferring to teach them the simple old gospel, the old, old story—Christ first, the church afterwards.

Health and Sanitation.—On the whole, the health of the children has been very good.

Water Supply.—Our water-supply is ample, four wells being used and each of them containing a supply of good water.

Fire Protection.—Two small chemical fire-extinguishers and constant care and watchfulness as to stoves and stove-pipes are all the protection we have.

Heating.—All our premises are heated with wood-stoves. In places where there is greater danger of children playing with fire, I use top-draft stoves, so that it is almost impossible for the children to get at the fire.

Recreation.—The principal recreations are football, baseball, swings and athletics. All of which is respectfully submitted.

I have, &c.,

J. R. MATHESON,
Principal.

NORTHWEST TERRITORIES,
PEIGAN C. E. BOARDING SCHOOL,
PEIGAN RESERVE, PINCHER CREEK P.O., ALTA., June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I beg to submit my annual report on the above institution for the year ended June 30, 1904.

Location.—This school is built on the banks of Pincher creek, and is situated on the northeast quarter of section 12, township 7, range 29, west of 4th meridian.

Land.—The school owns forty acres of land, being legal subdivision 9, of the section above-named.

Buildings.—The buildings consist of a boarding school proper, a carpenter-shop, stable and laundry.

The boarding school proper is 78 x 32 feet, 32 feet over all. It is built of wood, and lathed and plastered throughout. It contains kitchen, dining, play and sleeping rooms for the children, and rooms for the staff, as well as store-rooms and lavatories.

A new laundry has been erected during the year, 20 x 30 feet.

Accommodation.—This school has accommodation for forty pupils, boys and girls, also for a staff of six persons.

Attendance.—The attendance has been fair, but there are still a number of children of school age on the reserve, if they could be induced to attend school.

Class-room Work.—The pupils have made good progress in all their studies.

Farm and Garden.—A garden of two acres is well fenced in, and produces all the vegetables required in the school.

Industries Taught.—The boys are taught general farming; they do all the baking for the school, their own washing, and assist with their mending. The girls are taught housework, knitting, sewing and cooking.

Moral and Religious Training.—Religious instruction is given twice daily, and everything is done to improve the morals of the pupils.

Health and Sanitation.—The health of the pupils has been good on the whole, with the exception of the usual scrofula and consumption. There was one death during the year from consumption.

Water Supply.—A drive well in the kitchen supplies the institution with an abundance of pure water.

Fire Protection.—There are four small engines kept ready for use, should occasion require.

Heating.—The building is heated by hot air, from two large furnaces in the basement.

Recreation.—The children have ample grounds to play in, and in the summer spend their time in all kinds of games.

I have, &c.,

W. R. HAYNES,

Principal and Missionary.

NORTHWEST TERRITORIES,

PEIGAN R. C. BOARDING SCHOOL,

PEIGAN RESERVE, MACLEOD, ALTA., July 15, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I beg to submit the following report on the Peigan Roman Catholic (Sacred Heart) boarding school, on the Peigan reserve, for the fiscal year ended June 30, 1904.

Location.—The school is situated on fine elevated ground on the north side of the Old Man's river, a very healthy location, in the centre of the Peigan reserve, in close proximity to the agency headquarters buildings.

Macleod, Alta., is the post office address of the institution.

Land.—The land on which the school is built belongs to the reserve. About half an acre is fenced for a vegetable garden, in which we raise a fair crop every year.

Buildings.—The school-building consists of a large house, 84 x 26 feet, with an addition on the north side for a kitchen, 19 x 16, and a pantry, 17 x 14.

The centre building is 30 feet square two stories high. The roof part is unfinished and consequently unoccupied. On the first story are the refectories for the pupils and for the staff, the parlour, and a corridor leading from the front door to the kitchen. On the second story are the rooms for the staff, and a chapel of a good size. On the west side, we find on the first floor the class-room, the recreation-rom for the boys, 25 x 14½ feet ; on the second floor the dormitory for the boys, 29½ x 25 feet. On the west side, we find on the first floor the class-room, the recreation-room for the girls; on the second floor the dormitory for the girls. Both wings are the same size. We have a laundry, 30 x 20 feet. On the first story is the washing-room, 20 x 20 feet, and the coal-room, 20 x 10 feet ; on the upper story is the drying-room.

With the department's grant, we have been able to build a fence around the school, to paint the laundry and put on storm windows.

Accommodation.—The building affords accommodation for forty pupils and the staff.

Attendance.—The pupils of this institution being all boarders, the attendance is regular. Last year we lost two pupils : one, No. 7, was transferred to Dunbow school ; the other, No. 11, died of consumption. We admitted seven new pupils, three boys and four girls.

Class-room Work.—We follow the programme of the department. The progress is generally fair and encouraging.

Farm and Garden.—Our boys are too young to be of much use on a farm. But at special hours they assist in the garden.

Industries Taught.—Our children have special hours every day for manual work. The boys work in the garden, keep clean their rooms and dormitory, scrub the floors, and do a little work around the house. The girls are kept busy at general housekeeping, sewing, mending and washing clothes, helping in the kitchen, &c.

Moral and Religious Training.—Special attention is given to instruct our pupils in moral and religious truths. Catechism, Bible history and prayers are taught every day by the priest.

Health and Sanitation.—The health of the pupils has been generally good. We have a few cases of scrofula and one of our boys died of consumption; the health is generally improving.

Water Supply.—The institution has two wells, containing good water, one a few feet from the kitchen, the other close to the garden. They furnish an abundant supply of water for the establishment.

Fire Protection.—We have a fire-extinguisher, axes, and buckets of water are kept at convenient places through the building.

Heating.—We use common coal stoves.

Lighting.—Coal-oil lamps are used, and proper care is taken against any danger by fire.

Recreation.—We have two recreation-rooms, large and well ventilated, one for the boys, the other for the girls. We have a good fence around the school-buildings, and have two good yards for the children: one for the boys, the other for the girls. Besides, there is behind the buildings a fine piece of prairie, where the children can play in good weather, under the supervision of some of the staff, and where the boys take a special delight in playing football.

I have, &c.,

L. DOUCET, O.M.I.,

Principal.

NORTHWEST TERRITORIES,
ROUND LAKE BOARDING SCHOOL,
WHITEWOOD P.O., ASSA., August 4, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my twentieth annual report on the Round Lake boarding school.

Location.—The school is situated in the Qu'Appelle valley, at the east end of Round lake.

Land.—The land in connection with the school comprises about thirty acres of one-quarter section 14, township 18, range 3, also south half of section 23, township 18, range 3, west of second meridian.

Buildings.—The buildings are frame on stone basements. The main building contains the kitchen, laundry, dining-rooms, waiting-rooms, parlours, sleeping-rooms, store-rooms, sewing-room, pantries, bath-rooms, &c.

The school-house contains the school-room, boys' sleeping-room, teachers' and farmers' rooms and class-rooms.

Accommodation.—The buildings will accommodate eighty pupils.

Sanitary Conditions.—The location of the buildings is on well drained land which slopes towards the lake and river. The surroundings are kept clean and the rooms are large, with good light and ventilation. An abundant supply of good food is provided and exercise, sports, amusements and the cultivation of a cheerful disposition help to keep us all in good health.

Fire Protection.—Chemical fire-extinguishers, a good supply of water, fire-buckets, stove pipes and flues kept clean and in order, particular care taken with the fires, barrels filled with water and kept in convenient places, constitute the means employed for fire-protection at the school.

Farm and Garden.—We have about two acres of garden, in which is cultivated all the various kinds of vegetables required for the use of the school. There is also about one hundred acres under cultivation for farm purposes.

Industries Taught.—These consist of farming and gardening, the care of horses, cattle, pigs and poultry, carpentering, painting, glazing, kalsomining and baking for the boys, and dairy work, laundry work, making and mending clothing, knitting, fancy, needle-work, cooking and general housework for the girls.

Water Supply.—There is an abundant supply of water, which is pumped by a windmill from a well to a large tank in the attic, and thence to all parts of the building.

Heating and Lighting.—The buildings are heated by a furnace and lighted by coal-oil lamps.

Recreation.—Tobogganing and skating in winter, football and other games in summer, together with boating and bathing, form the chief recreations of the pupils.

Attendance.—There has been an average attendance of about twenty-four pupils during the year—about an equal number of boys and girls.

Class-room Work.—Good progress has been made, and the course of studies prescribed by the department has been followed; vocal and instrumental music are also being taught.

Religious Instruction.—Sabbath school and public services are held on the Sabbath and also morning and evening devotions. In all our teaching we aim at building up a Christian character.

General Remarks.—The following improvements have been made at the school during the past year, viz.: digging of well, building of windmill of sufficient power to run the pump, saw and crusher, fixing up two bath-rooms, plumbing, and furnace, the whole cost of which was $1,000.

The Staff.—The staff consists of the principal, teacher, assistant teacher, matron, assistant matron, cook and farmer.

All of which is respectfully submitted.

I have, &c.,

H. McKAY,
Principal.

NORTHWEST TERRITORIES,
SARCEE BOARDING SCHOOL,
CALGARY, ALTA., September 7, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit a report of the Sarcee boarding school for the year ended June 30, 1904.

Location.—The school is situated on the southeast corner of the reserve, and near the agency buildings.

Land.—About ten acres are fenced in for school and mission purposes.

Buildings.—The school consists of boys' and girls' wings, separated by the dining room and kitchen.

Accommodation.—There is accommodation for twenty boys and ten girls, and for a staff of three.

Attendance.—Twenty pupils were on the roll on June 30, comprising eleven boys and nine girls. Seven of these were admitted during the year, but one after being allowed to remain in the school for a time was discharged again, as the medical officer felt he could not pass him. One girl was discharged.

Class-room Work.—This has gone on as usual. The grading of the pupils is as follows :—

	Boys.	Girls.	Total.
Standard V	—	1	1
" IV	—	4	4
" III	2	2	4
" II	4	—	4
" I	5	2	7

The explanation of the fact that the girls are ahead of the boys is that they are older, the boys over fourteen years of age having all been drafted into the industrial school.

Moral and Religious Training.—This has the first place in all our work, and is always kept in view.

Health and Sanitation.—The health of the pupils has been good during the year.

Water Supply.—Two pumps provide us with excellent water. The windmill is constantly out of order and cannot be relied upon.

Fire Protection.—Barrels of water, buckets and fire-axes are on hand and kept in convenient places. We have also two Patton fire-extinguishers.

Heating and Lighting.—Coal and wood stoves provide the former, and lamps, in which coal oil is used, the latter.

Recreation.—Swimming, riding, fishing and football are indulged in. The elder pupils enjoy reading.

General Remarks.—The staff remains the same as last year.

I have, &c.,

J. W. TIMS, C.M.S.,
Principal.

NORTHWEST TERRITORIES,
SMOKY RIVER (ST. AUGUSTINE) R. C. BOARDING SCHOOL,
SMOKY RIVER, *via* EDMONTON, ALTA., June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I beg to present herewith the annual report of the Smoky River (St. Augustine) Roman Catholic boarding school, for the year ended June 30, 1904.

Location.—The school is situated a few yards from the Peace river, whose beautiful, sparkling waters reflect the image of the thick forest on the right bank. From the top of the hills, by which our mission is surrounded, a charming view is obtained.

Land.—The mission was established eighteen years ago by the Oblate Fathers, who are the owners of the land on which the houses are built; the large field, about seventy acres, situated between the hills and the buildings, is their property also. There are no surveyors in the vicinity, so we cannot tell exactly the area of land, but it is estimated to be about three hundred and fifty acres.

Buildings.—The buildings are as follows : a two-story structure, 35 x 20 feet; the lower portion is entirely used for school purposes, while the upper part is used as a boys' dormitory. A second building, three stories high, 40 x 26 feet, has two wings, each 25 x 15 feet, and an addition two stories in height. The lower story is suitable for culinary work and the upper as a dining-room. The dormitory for the girls is in the third story, which forms the sisters' residence. In one of the wings of our main building is the chapel, and the other is used as a store-room.

Accommodation.—The buildings can easily accommodate eight sisters and about sixty children.

Attendance.—The attendance is very regular on account of the pupils being all boarders.

Class-room Work.—The school-room is open twice daily from 8.30 to 11.30 a.m., and from 1 to 4 p.m. The programme of studies is followed with application, both by teachers and scholars.

Moral and Religious Training.—Religious instruction is attended to with a persevering application by one of the reverend fathers. The sisters also do all in their power to enlighten the minds of the children confided to their care; their ceaseless attention is amply repaid by the good conduct and general behaviour of the youthful scholars.

Farm and Garden.—The work is done on the farm by the lay brothers, helped by the older scholars, who are always glad to lend a useful hand in planting potatoes, turnips, cabbages, pease, beans, or radishes. All the wood used for fuel is sawed by them.

Health and Sanitation.—The cold season has been very severe, and notwithstanding our watchful care, influenza made its appearance. Three of the pupils died during

the winter, but towards spring the illness happily ceased, and the bloom of health was restored to the cheeks of the sickly little ones.

Industries Taught.—Sewing, knitting, dressmaking and washing are taught to the girls, while the boys learn farm work.

Water Supply.—In front of our buildings flows the large river on which the mission is situated, and from which a supply of water is obtained.

Heating.—A hot-air furnace supplies a good heat through the entire building.

Recreation.—A swing has lately been erected in the yard for the use of the pupils, and football and gymnastic exercises are also favourite amusements.

I have, &c.,

SISTER SOSTENE,
Principal.

NORTHWEST TERRITORIES,
ST. ALBERT BOARDING SCHOOL,
ST. ALBERT, ALTA., July 4, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the fiscal year ended June 30, 1904.

Location.—The school is situated about nine miles north of the town of Edmonton. It is not on a reserve, but is in the St. Albert settlement, bordering on the Sturgeon river.

Land.—The area of the land in connection with the school and owned by the corporation of the Sisters of Charity, is three hundred and thirty-five acres ; situated in township 54, range 25. Over two hundred acres is under cultivation ; the rest is in pastures and woodland.

Buildings.—There are two principal buildings. The main building, 180 x 35 feet, contains the school-rooms and is occupied by the staff and the girls; it is a four story structure.

The other building, 50 x 30 feet, is used by the boys. The outbuildings are : bakery, laundry, meat-house, root-house, ice-house, implement-sheds, repair shop, granary, hennery, horse and cattle stables, besides numerous smaller buildings.

Accommodation.—The school has accommodation for two hundred persons.

Attendance.—The average attendance during the year was seventy-two.

Class-room Work.—The public school programme for the Territories is followed. The children have shown considerable aptitude in the pursuit of their studies and have made great progress during the year.

Farm and Garden.—Over two hundred acres of land is under cultivation. Farming being one of the most useful industries for the young men of this country, great effort is made that every boy who leaves the school shall have a practical knowledge of it. The farm and garden produced last year five thousand bushels of grain, eighty-five tons of hay, two thousand bushels of potatoes, six hundred bushels of turnips, besides what vegetables were used during the season on the tables fresh. With the exception of five hired men, the work on the farm is done by the older boys ; the younger boys work in the garden.

Industries Taught.—All the pupils are employed certain hours daily, each according to sex and ability at various kinds of labour. The girls do the sewing and mend-

ing of the clothes, cutting and making of new clothes, baking, cooking, laundry work and all ordinary household duties; also carding, spinning, knitting and fancy-work. The boys attend to the farming, gardening, dairy work, and the keeping of the farm implements, harness and shoes of the pupils in repair ; besides caring for the stock. The live stock consists of eighteen horses, six colts, one hundred and twenty-five head of cattle and two hundred poultry.

Moral and Religious Training.—Careful attention is paid to the moral and religious training of the pupils and every effort is made to instil into their minds, their duty towards God and man. The pupils' conduct being generally good, punishment is rarely resorted to.

Health and Sanitation.—The health of the pupils has been good, if we except a slight outbreak of influenza towards spring. Every precaution has been taken to ensure perfect sanitary conditions.

Water Supply.—The water-supply continues to be very satisfactory. The hot-air pumping engine pumps five hundred gallons of water per hour to the attic, where there is a large tank, from thence the baths, wash-rooms, &c., of the various flats are supplied. We have also two good wells on the premises for watering the cattle.

Fire Protection.—Water is distributed throughout the buildings from a large fifteen hundred gallon tank, which is situated in the attic. Two reels of hose kept near taps furnish an ever-ready means of fighting fire. Ample means of escape in case of fire are provided by outside stairways from the different flats to the ground; besides six ladders on and around the buildings. Five fire-extinguishers, twenty grenades and three axes are conveniently placed about the halls.

Heating and Lighting.—The buildings are heated by two hot air furnaces, besides several stoves. Coal-oil lamps are used for lighting.

Recreation.—The pupils indulge in healthful outdoor games three times a day after meals. Several picnics were given during the year, especially during the warm season, which the children immensely enjoyed.

I have, &c.,

SISTER L. A. DANDURAND,

Principal.

NORTHWEST TERRITORIES,
THUNDERCHILD'S (ST. HENRY'S) BOARDING SCHOOL,
BATTLEFORD, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the fiscal year ended June 30, 1904.

Location.—The Thunderchild's (St. Henry's) boarding school is adjacent to Thunderchild's reserve, on the Roman Catholic mission.

Land.—The land in connection with the school consists of the southeast quarter section 6, township 46, range 18, west of 3rd meridian, patented. It is a plateau with nice groves and is about one mile distant from the Saskatchewan river. It is adapted to the growing of any kinds of grain.

Buildings.—The main building contains the sisters' private rooms, kitchen, children's refectory, dormitories, pantries and class-room. There is also a laundry, a storehouse, a bakery and a stable. A new hen-house was constructed last July. These last-mentioned buildings are not the government's property.

Accommodation.—There is accommodation for thirty pupils and a staff of six.

Attendance.—There are twenty pupils on the roll, twelve boys and eight girls. Four boys and two girls were admitted and one girl was discharged during the year.

Class-room Work.—The programme of studies as given by the department is followed as closely as possible. The progress is good and encouraging.

Farm and Garden.—There are about twenty-five acres, this year, under cultivation. We have also a garden in which is raised a full supply of potatoes and other vegetables for the use of the school. The garden and farm work give the children healthy occupation.

Industries Taught.—All the general work required on the premises is performed by the pupils. The girls are taught all kinds of useful housework such as sewing, knitting, mending, darning, washing, ironing, house-cleaning and cooking. All the bread that is used in the school is made by both boys and girls, and is baked in a Hubbard portable steel oven, which has a capacity of eighty two-pound loaves.

The boys are taught the various kinds of farm work, such as attending to the horses and cattle, milking the cows, drawing water, chopping and sawing wood, ploughing, harrowing, hay-making, repairing fences, cobbling, scrubbing, and any ordinary work required.

Moral and Religious Training.—This has the first place in all our work, and we believe our efforts are attended with a great measure of success.

Health and Sanitation.—About the middle of winter, small-pox became epidemic on the reserve, and a few weeks afterwards extended to this school, but, although nearly all the pupils were attacked, they all recovered and are now in good health. The sanitary conditions are looked after carefully and everything is cleaned around the place and outbuildings as required.

Water Supply.—Our well, having been deepened last year, now gives a sufficient supply for fire-protection.

Fire Protection.—We have on hand two Patton 'Star' glass-lined, chemical fire-extinguishers, six axes and six pails conveniently placed about the house. Two ladders are also attached to the roof of the house.

Heating and Lighting.—The building is heated by wood stoves and lighted by coal-oil lamps.

Recreation.—During summer, football, swimming, riding, shooting with bows and arrows, and in winter playing cards, marbles and checkers are the favourite pastimes of the boys. Swinging, skipping, singing and reading are much enjoyed by the girls.

I have, &c.,

H. DELMAS, Priest, O.M.I.

Principal.

DISTRICT OF ATHABASCA,
VERMILION (ST. HENRI) BOARDING SCHOOL,
FORT VERMILION, October 26, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the first annual report of the Vermilion (St. Henri) Roman Catholic boarding school for the year ended June 30, 1904.

Location.—The school is situated on a very picturesque bend of the Peace river, facing the Caribco mountains on the north and the Buffalo mountains towards the

south. Here ends, also, the last spur of the Rockies, six hundred miles below the main range.

Land.—The land is owned by the Oblate Fathers. Surrounding our establishment there is about twenty-five acres under cultivation. But a few miles inland the mission has a large field, which supplies us with grain and vegetables.

Buildings.—The sisters' convent is used partly for the school. The present building, appropriated for the use of the boarders and their teachers, has been put up temporarily, but the plans have been prepared for a good, large structure, which no doubt will be sufficient for the accommodation of the pupils.

Attendance.—Owing to some temporary sickness which caused the parents a certain reluctance to part with their children, the attendance has not been as satisfactory as we should have wished, but we are confident that in the near future the number of pupils will increase and that the country around will benefit by the good training given in the school.

Class-room Work.—This is carried on by two Sisters of Providence. They follow the course of studies as given by the department. One must remember that the Beaver school has been in existence for a year only, and that the pupils never spoke any but the Beaver Indian language before joining the school. They have given satisfaction in their studies, learning very fast.

Moral and Religious Training.—It is always the principal object on the part of the good sisters and the missionaries to impress the pupils with the importance of acquiring such moral virtues as will render them agreeable in the sight of God and respected by their fellow-men.

Health and Sanitation.—Every possible precaution is taken to ensure perfect sanitary conditions and we have had no deaths to deplore during the year.

Fire Protection.—Our only means of protection against fire is the water which we obtain from the Peace river.

Heating.—Wood is the only fuel we have used for heating purposes, so far, although there is an abundance of coal in the vicinity.

Recreation.—Recreation is taken, as much as possible in the open air, under the constant supervision of the sisters. The pupils enjoy very much the usual games suitable to their age and stand easily the low temperature of our northern clime.

I have, &c.,

SISTER MATTHIAS,

Principal.

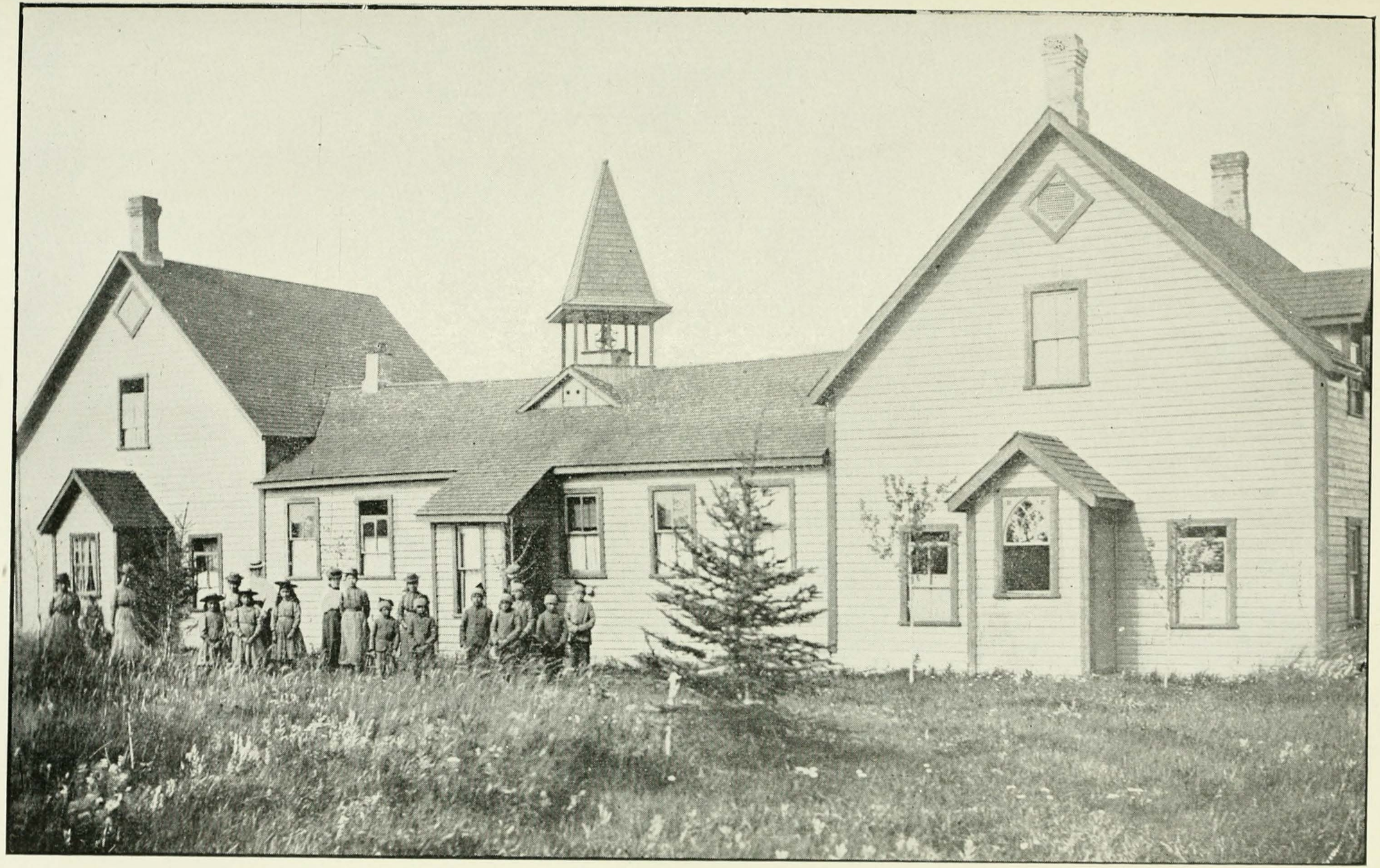
NORTHWEST TERRITORIES,
WABISCOW LAKE (ST. MARTIN'S) R. C. BOARDING SCHOOL,
LAKE WABISCOW, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the annual report of the Wabiscow Lake (St. Martin's) Roman Catholic boarding school for the fiscal year ended June 30, 1904.

Location.—The Mission is situated on a picturesque little stony point on the north side of the lake, and the school-house stands but a short distance from this beautiful expanse of water.

Land.—The area of land in connection with the school is about eight or nine acres. The same is under cultivation. The Oblate Fathers are the owners of this land, and on their premises the school has been built.



SARCEE BOARDING SCHOOL, NEAR CALGARY, ALTA.

Buildings.—There are four buildings ; the two largest of which stand in a horizontal line, having the church between them, but advanced toward the lake so as to form an oblique line to the two buildings. The building on the east side is three stories high, the largest room on the first floor being consigned to school use, two other rooms are used as dining-rooms and the other as a sewing-room.

The addition on the north side is two stories high, the lower containing the kitchen and the upper the boys' dormitory.

On the second floor of the main building are the sisters' apartments and the chapel. The third story is entirely occupied by the girls as a dormitory.

A wing has been erected on the west of the main building. The lower part will be used as a school-room and the upper as a dormitory for the boys. A storehouse has been constructed a few paces from the kitchen, and in it are kept all the provisions and groceries.

Attendance.—The children have attended school quite regularly during the term. There have been a few absences out of the number of pupils on the roll.

Class-room Work.—I am pleased to state that the pupils are progressing in their studies according to their tender ages. Several of them are very talented. The majority of our scholars are fond of school and are diligent and studious.

Industries Taught.—The boys are kept busy carrying water for the supply of the house, preparing fuel and, in the proper season they are taught gardening. They aid also in taking care of the domestic animals. The girls are taught to sew and knit, and do all kinds of mending. They manifest very good dispositions, are willing and anxious to learn dressmaking and all that relates to household duties.

Moral Training.—The reverand fathers and sisters attend to this part of the education with the greatest care and viligance. They work with untiring zeal to instil into these young minds a love of God and their duties as Christians.

Health and Sanitation.—The children enjoy very good health, notwithstanding their weak constitutions. All have been exempt from any serious illness during the year.

Fire Protection.—The waters of the lake and the supply continually kept in the house are our present protection against fire. In the near future we hope to have a pump in the house.

Heating.—The house is heated by several stoves. Wood is the only fuel used.

Recreation.—There is a large yard in front of the house, where the children amuse themselves in the pleasant weather playing games, swinging, &c. They also have drills and calisthenic exercises.

General Remarks.—The government grants yearly $72 per capita for fifteen pupils.

I have, &c.,

SISTER TIBURCE,
Principal.

NORTHWEST TERRITORIES,
ATHABASCA DISTRICT,
WABISCOW LAKE C. E. BOARDING SCHOOL,
WABISCOW, *via* ATHABASCA LANDING, July 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I send, as requested by the department, the following report for the year ended June 30, 1904, on the Wabiscow Lake (St. John's Mission) Church of England boarding school.

Location.—The school is situated on Lake Wabiscow, on the second lake (coming in from Athabasca Landing) of this name. Our nearest post office, Athabasca Landing, is one hundred and twenty miles south of here. The school and little settlement are situated on the north bank of a large bay of the above lake. The bay runs east and west, the lake itself running north and south. We are not on a reserve.

Land.—The land has never been surveyed or measured ; it is a long, narrow strip running back about three-quarters of a mile, and is situated between the trading posts of the Hudson's Bay Company and Johnston Bros.

There is perhaps in the claim about forty or forty-five acres, about twelve of which is cleared. The land belongs to the Chuch Missionary Society of England, and was bought from an Indian, who had built two little houses on it and cleared about an acre. The land is very rich and has a nice slope towards the south. It is about thirty feet above the lake. Almost all kinds of vegetables do well, and grain, wheat, oats, barley, and pease, have been grown with success. We very rarely have late or early frost.

Buildings.—The mission-house mentioned in last year's report was burned to the ground on the night of November 12 last. A curtain catching fire from a candle and there being a very high wind at the time, the fire got beyond control in a few minutes.

We have already built another house for the boarding school about one hundred and fifty yards back from the old site. We have also some logs drawn to the old site for the missionary's house. The new house is at present being shingled. The main part is 33 x 24 feet, with a kitchen 22 x 16 feet, and is a story and a half high, built of logs, with a Gothic window, thus providing a large roomy flat above.

We have also built a new storehouse, separate from the boarding school building.

There is also a church, the main part of which is 17 x 22 feet, with a chancel 10 x 12 feet, a vestry and a lean-to about 8 x 10 feet. This church, with the chancel and vestry, has given accommodation to the school children and two ladies, and has been used during the week as a school-room and for services and Sunday school on Sundays.

We hope when the new house is completed, about September, to restore the church to its legitimate use. A log building, 12 x 14 feet, a story and a half high, is used by the missionary as a study and office; the upper story is fitted up as a bed-room. In this building the missionary, his wife and family, have lived during the winter, and all cooking for the school children and staff has been done there.

There is also a cattle-shed, horse-stable, pig-house, dog-yard and poultry-yard, all log buildings.

Accommodation.—Last year we had accommodation for the missionary, his wife and family, two ladies and a young man who assists at outside work, also for twelve girls and ten boys. When our new buildings are completed, we shall have accommodation for a much larger number.

Attendance.—The majority of the scholars being boarders, their attendance has been regular. The children of the traders who attend the day school have been regular, but the attendance of Indian children who are day pupils is very unsatisfactory even for the short time their parents live at the settlement. They usually go off hunting during the winter.

Class-room Work.—The teaching ranges from the lowest standard to the fourth reader. The writing of the pupils is very good. The more advanced, study geography and grammar. The parents nearly all speak only the Cree, but the children are learning English very fast.

Farm and Garden.—Farming or stock-raising has not been very successful here. During the last few years the water has been so high that hay has been scarce. There are hundreds of acres of grass-land that in a wet season are under water and in a dry season are very hard to cut, the surface being so rough. Horses winter out here and get fat, as they have all this land to pasture on as soon as the water freezes.

Another reason against stock-raising is that there is each year, and more especially during last year, a number of cattle poisoned by eating wild parsnips, which grow up

green as soon as the snow goes away, over the low-lying wet land. The horses will not eat them and the cattle only until the pasture becomes good.

During the spring of 1904, however, I did not hear of any cattle dying of this poison. By being able to feed cattle a little later in the spring, this danger will be avoided, and this can be done when we get more land cleared and are able to raise the necessary feed for them.

Gardening has been very successful, and a great source of profit, enabling us to use vegetables for our large household. Potatoes grow very abundantly and are extra large and sound ; carrots, turnips and cabbages also do very well.

We try to make the garden an object lesson to the children and also their parents, of what the land will produce.

Industries Taught.—There are no distinct industries taught here as yet. The girls receive instruction in housework and knitting, and the boys are taught the care of horses, cattle and pigs and also work in the garden.

There will be hunting here for some years to come, as there are many fur-bearing animals, and if the Indians had gardens to raise a few potatoes or other vegetables their living would not be so precarious.

Moral and Religious Training.—Being a mission school, this part of the work is considered of the highest importance, our endeavour being to bring each child into a personal knowledge of Jesus as his Saviour.

During last winter, upon opening school each day, we have carefully studied the Gospels in English and Cree. The children have also been taught to sing some well known hymns in English. Sunday school has been held on Sunday afternoons, when lessons from the Old Testament are taught and the lives of the Old Testament characters are studied.

Health and Sanitation.—The health of the pupils so far has been very good. During the nine years that the school has been open, we have only lost four children—two girls and two boys—one boy, who was sick when he arrived at the school, died a few months after. We try to take every legitimate precaution against disease that we can, consumption is the worst enemy the people have. During the ten years of my connection with this mission, I have met with no cases of fever or measles among these people.

Sanitation is observed as far as possible. Our buildings are situated high above the lake with a good fall for natural drainage.

Water.—The water-supply is defective, as we are dependent on the lake. A well has been dug, but the water tasted so strong that we could not use it. The supply is abundant, but at times the water in the lake gets very muddy.

Fire Protection.—We have no regular system of fire-protection, as the loss of the house proved. Still, we keep a supply of water always standing ready for use up-stairs and in the kitchen.

Heating and Lighting.—The heating was done by stoves in the old house. In the new house we shall have two zinc chimneys in the main building and a chimney jack over the kitchen.

The lighting is done by means of lamps and candles.

Recreation.—We have swings, and during the summer the children have a game in which they make a camp, like the teepees their parents live in. Last summer, one of the ladies took all the children that remained with us for the holiday, across the lake, and camped out for three weeks. They enjoyed bathing and swimming. This summer they bathed from the school with some one in charge.

The boys are very fond of football. In the winter we sometimes teach them round games like snap, or some spelling game.

General Remarks.—There has never been so much English spoken at the school as during this last year. The children now speak it entirely during school hours and some of the traders' children speak it at home altogether.

There is a decided improvement in the people ; they were never so prosperous as they have been during the last two years.

There have been no heathen feasts or signs of heathen worship such as 'praying sticks,' 'the stripped stick and stone' seen in the feast tents for years.

I have, &c.,

CHARLES RILEY WEAVER,

Missionary in Charge.

NORTHWEST TERRITORIES,
BATTLEFORD INDUSTRIAL SCHOOL,
BATTLEFORD, SASK., July 18, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—In accordance with circular of May 18, the following report in connection with this school for the year ended June 30, 1904, is respectfully submitted.

Location.—The school is located on the south bank of the Battle river, about two miles west of where this river falls into the north branch of the Saskatchewan ; it is about two miles, due south, from the town of Battleford—which is our post office. It is built on land specially reserved by the Dominion government for the use of this school. The main building, with some alterations and additions, is the same that was used as the official residence of the Hon. David Laird, Indian Commissioner, when he was the first Lieutenant Governor of the Northwest Territories.

Land.—In the immediate vicinity of the buildings there is a reserve of five hundred and sixty-six acres ; and one of three hundred and seventy-six acres, three miles to the east of the school. The former is where all our farming land is, but the greater portion of it is sandy soil and wooded, although the wood is not yet large enough for fuel purposes. The latter reserve is mainly a hay swamp, where we get our supply of hay each year. The land is all in township forty-three (43), range sixteen (16) west of the third meridian, and comprises portions of sections fifteen, seventeen, eighteen, nineteen and twenty.

Buildings.—These consist of the main building, in which the pupils and most of the members of the staff reside, principal's residence, two cottages, one of which is used by married members of the staff and the other as a laundry ; then there are the carpenter-shop, blacksmith-shop, store-room, stable, pig-pen, hen-house, warehouse, root-house, granary, and the small outbuildings. We reshingled five buildings during the year.

Accommodation.—We have accommodation for a hundred and fifty pupils, and for a staff necessary to look after them.

Attendance.—Admitted on department's roll, sixteen; discharged, nine; died, three; number in school, one hundred and seven pupils.

Class-room Work.—This is carried on by two teachers—a male and a female, each in a separate class-room. The boys are taught by the male teacher, and the girls by the female teacher. The course of studies required by the department is adhered to, the pupils are graded from the alphabet up to standard VI. Several of our ex-pupils are engaged in school-teaching in connection with the Indian work in Manitoba, Saskatchewan and Athabasca.

Farm and Garden.—We have about fifty acres under cultivation, six being worked as a garden. We have what is considered to be the best garden in the district—one hard to beat anywhere. At the time of writing everything promises a good yield.

Industries Taught.—Farming and gardening, the care of horses, cattle, pigs and poultry; baking, dairy work, laundry work, sewing, knitting, making and mending

clothes, cooking and general housework; blacksmithing, carpentering, kalsomining, painting, glazing, &c., comprise the industries taught at this school.

Moral and Religious Training.—To this we give special care, as without this foundation, this leaven, we would consider all other building but vain, it would not rise in the true characters which go to make good citizens. We have regular morning and evening prayers, with reading of the Holy Scriptures each day; the regular church services and Sunday school work on Sundays; special prayer-meeting each Wednesday evening; a circle of the 'King's Daughters', amongst the girls; and of the 'King's Sons' amongst the boys; also a branch of the 'Daily Scripture Reading Union,' to which both boys and girls belong. These have been organized and carried on for several years past, with very good results. The meetings of these organizations are officered by the pupils, and conducted by them under staff supervision. The members of the staff readily take their part in the moral and religious training of the pupils, and all together we endeavour to combine 'true religion and honest industry.'

Health and Sanitation.—We have been blessed with good health during the year. The ventilation of the building is good, and the sanitary arrangements are well attended to.

Water Supply.—We have an ample supply of very good water in our wells.

Fire Protection.—We have a number of hand-grenades, Babcock fire-extinguishers, axes and pails of water, placed in different parts of the building. There are four tanks in which a supply of fresh water is always kept. Iron pipes are connected with the upper two tanks and lead down to the lower floors, where rubber hose connect with them. A McRobie fire-apparatus is also located in the main building, having pipes and hose from it to the three stories. There are fire-escapes from the dormitories, and a supply of ladders is always kept near at hand.

Heating.—This is done by hot-air furnaces, and ordinary stoves, wood being the fuel used.

Lighting.—Ordinary lamps with coal oil are all we have for this purpose.

Recreation.—This consists of swings, football, and other games, with plenty of outdoor exercise.

General Remarks.—With reference to ex-pupils, some who returned to the reserve life do not make the progress they ought to, or that one could wish for—their surroundings are frequently against them—but these are not all, and we must not expect too much from the first remove from savagedom. Some have their own places and property on different reserves and are doing well. Others again who have not taken to the reserve life are earning their own livelihood amongst the settlers; it might be well for all, or nearly all, of the boys on leaving the school to do this for some years, so as to get a knowledge of the settled life of the country by actual experience. The knowledge of the English language obtained by the pupils while in the school, and their general training and surroundings while here give them a fitness and also an inclination for employment amongst the white settlers. Some of our ex-pupils are engaged in various places as teachers or helpers in connection with the Indian schools. One is attending college, studying with a view to taking holy orders. Another has taken his course and is to be ordained to the sacred ministry of the church at the end of this month. Verily the work has not been in vain and surely these are steps towards the final solution of 'The Indian Problem.'

I have great pleasure in bearing testimony to the faithful work of the members of the staff in bringing about the good results that are manifest.

I beg to thank the officers of the department for their kind, courteous treatment; it is heartily appreciated and assists very materially in the important work of improving and elevating the Indian.

I have, &c.,

E. MATHESON,

Principal.

NORTHWEST TERRITORIES,
CALGARY INDUSTRIAL SCHOOL,
CALGARY, ALTA., June 30, 1904.

The Honourable,
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I beg to submit the following, my eighth annual report from the above school.

Location.—The school is not situated on any reserve, being on the south bank of the Bow river about five miles south of the city of Calgary, and about one mile from where the main line of the Canadian Pacific Railway crosses the Bow river for the first time, going west.

Land.—The land in connection with the school is very nearly half a section. One full quarter section, our northernmost one, officially designated as the southeast quarter section 2, township 24, range 1, west of 5th meridian, was purchased by the department when the school was inaugurated. This portion of our land, being stony and hilly, is practically of value only as pasture. The remaining land consists of the portion of the northeast quarter section 35, township 23, range 1, west of 5th meridian, which lies south of the Bow river; the southeast corner of this quarter section being cut off by the Bow river. On this quarter nearly all the buildings are situated and nearly the whole of our cultivatable land.

This quarter section was presented to the department by the Corporation of the City of Calgary, for the erection of an industrial school—one third only of which has been completed to date.

The total area now is in the neighbourhood of two hundred and eighty-five acres, of which about seventy acres may be cultivated, the remainder being either a boggy marsh, or upland hills with heavy boulder gravel near the surface, only fit for pasturage.

A spring, with a large supply of water, rises in the north quarter section and runs south through the whole of the southern one. The boggy marsh spoken of above lies on both sides of the small creek so formed.

Buildings.—No new buildings have been added this year, but I am thankful to say that the south end of the main building on the recommendation of the late inspector, Major McGibbon, has been lathed and plastered with roughcast, in lieu of its old condition of being simply boarded over with shrunken shiplap. The effect was experienced during last winter, when we found it possible to keep the building fairly warm, which before had been practically impossible. The interior of the main building has been remodelled in the basement. The old fittings in the wash and bath-room were all taken out and a much more suitable arrangement put in. The baths, instead of being left in this room—so that the pupils, after a hot bath had to climb the whole height of the building past every door to the exterior, in order to reach their dormitories—have been removed to a small room in the upper story between the two dormitories, allowing much less danger of contracting cold, and being a great deal more convenient. The hot-air pumping engine has been taken out of the furnace room, where dust and ashes collected on it, and has now a small chamber partitioned off for it in the wash-room ; and works again now very satisfactorily. The furnaces have been completely overhauled and repaired and now work as usual. In addition to these improvements, the room used as a hospital ward has been painted throughout —walls, floors and fittings—to allow of washing and disinfecting conveniently. Since this has been done, I am glad to say we have had no serious cases to send there.

There is still no residence for the principal and every room in the main building is occupied, I am therefore still in possession of the building erected for a laundry, which is very inconvenient, and naturally in many ways uncomfortable.

Accommodation.—As the dormitories are well lighted and airy, we can accommodate forty pupils. There are rooms in the main building for four members of the staff—the farmer living with his family in the farmhouse about three hundred yards from the school, and as stated above I am living temporarily in the laundry.

Attendance.—We commenced the year with a total number of forty-one pupils on the register, but that included a comparatively large number who were discharged at the beginning of the new fiscal year. We close this year with a total registration of twenty-seven. There was only one pupil admitted, so that the summary is as follows :—

No. of pupils on roll July 1, 1903	41
Admitted during the year	1
Total	42
Discharged during the year on account of age and other causes.	15
Total number on roll June 30, 1904	27

The difficulty in keeping this school filled up to its limits seems due to the same causes as previously reported. One owes its origin to the fact that those responsible for the boarding schools do not appear to use all the influence they might to secure the transfer of the older (and probably most promising and bright), pupils, as they arrive at the usual age. And another cause seems to be the aversion which many of the Indians have to education for their children.

Class-room Work.—This year the class-room work has not been so satisfactory as in previous years, for more than one reason. In October, Mr. Mills, the teacher, who did good work here for six years, left us, and we were without a teacher until February. I had secured a very promising young man, but he was offered a more lucrative post in the Western Canada College before his appointment was confirmed and we unfortunately lost a good man in him. During those five months, the winter being our chief lesson time, I personally tried to keep the school-room going as well as I could, but necessarily, owing to other duties it was not completely satisfactory. By advertising, I secured the services of another man in February after a good deal of trouble, but at the time of writing he also has left us, not being quite up to our standard. In spite of these drawbacks, many of the pupils are holding their own and some have shown a striking advance in their knowledge of the English language.

Farm and Garden.—Our garden has again been successful. No vegetables have had to be purchased and we had many—cabbages for instance, up to the end of March—stored away in the fall for winter use. Our grain crop was not heavy ; chiefly oats, which were not fit for seed, but were sufficient for all our feeding purposes.

I should mention that we supplied ourselves last winter, from our own herd, with three months' supply of beef, and this year I am counting on a six months' supply.

Industries.—Before dealing with these individually, I would like to make a few general remarks. As the pupils whom we receive in this treaty into our schools, are practically the first generation who have been brought into anything like close contact with education, I made up my mind that, except in very few cases, it was altogether impracticable and fore-doomed to failure, to expect to train these Indian pupils with their recent, and therefore strong tradition of the prairie and the teepee, to become mechanics strictly speaking, so that they could go out into the world and compete with any chance of success with white men. Such a hope was altogether beyond the limits of reasonable expectation. It seemed to me that our hope really lay with the children and grandchildren of those whom we now are teaching, and that our wisest course was to lay such a foundation with these children as would enable them to value the

teaching for themselves and lead them to ensure their children securing it when they came into existence. Consequently, more than seven years ago when beginning here, I arranged that every boy should take his turn at everything, so as to ensure a certain degree of familiarity with tools of all kinds, and with all sorts of work. In this I was particularly indebted to Mr. C. F. Pippy, who came as our first carpenter instructor, and who, I reported last year, had left us. He has returned to us again for a time at least, and during the whole time he has been here he has not confined his instruction to carpentry by any means. Plastering and mason work, plumbing and fitting, iron work and painting have all been done under his teaching, in fact, anything at all which might eventually be useful to the pupils.

While the course laid out above has been our general rule, whenever a pupil showed any special aptitude or liking for any particular branch, his natural bent was indulged in; and as a record of actual results, I might mention the following cases of discharged pupils.

1. Jim Starlight, a Sarcee, the first boy who entered the school, has for the past three years worked out and made good wages as a carpenter and painter, not on the reserve, but among the settlers, where he has gone to seek work for himself with assistance from no one. He worked for some time for Mr. C. W. Peterson, as a carpenter and painter, and is now engaged by Dr. J. D. Lafferty, of Calgary, to build a house for him at Banff. Both these gentlemen have personally expressed their satisfaction at the lad's work, and this week I was offered for him the job of painting a large building in the vicinity.

2. Haughton Running Rabbit, a Blackfoot, son of the chief, who was pupil No. 11, at first did not prove quite satisfactory when he returned home, the seductions and license of camp life being more than he could stand. He has now returned to a better mind, and for some time past has been working under the direction of Mr. W. Church, a contractor, of Calgary, at rebuilding the mission-house on the Blackfoot reserve. Mr. Church's estimate of this boy's capability is, that 'he is quite competent to go out and work in competition with white men, and his finishing work is excellent, being done with care and exactitude.'

3. Joe Mountain Horse, No. 29, left us last year and has been acting as police interpreter ever since, giving every satisfaction.

There are others doing well, but these are three instances to which my own attention has recently been called in the manner above recorded. They show that some, at least, even now show the result of training; their children should show it still more if heredity and environment count for anything in the history of peoples.

I have made no mention of any particular work executed in the carpenter-shop, but in addition to all the repair work for which we had facility here, there has been turned out an excellent set of church furniture, which formed our exhibit at the last Inter-Western exhibition in Calgary, and for which the directors awarded us a diploma. With reference to this, I might quote the following from the Calgary *Daily Herald*, of July 5, 1904.

'The St. Dunstan's industrial school has a beautiful exhibit of church furniture, manufactured by the Indian boys. The furniture comprises an altar, lectern and two reading desks. The furniture is elaborately carved and polished. The brass letters and plates on the altar were cut and polished by the boys. The exhibit is a striking illustration of the good work done by such schools in training these children of the wild. It indicates ability and skill in the boys who turned out such creditable carving.'

There is also another department which I have not yet mentioned, but which is always of great interest to visitors. We have been loaned by the diocese of Calgary a complete printing plant, on condition that we print a small monthly paper, the church defraying all cost, of course, for materials. This we have done for over two years, and now there are two at least of the pupils who are capable of entering any printing office in the country and earning their sixty to eighty dollars a month.

Moral and Religious Training.—Amid the stress of our daily work this side of education is not left out. Daily prayers morning and evening, with full services on Sundays are always held and continual consistent teaching of the 'better things' is given.

Health and Sanitation.—I am glad to be able to report that this year we have been practically free from all severe illness. With our typhoid experience of last year the necessary alterations were made to place the school in a thoroughly sanitary condition. There is only the one thing yet which militates against this. The only available place for the laundry work, until the residence for a principal is built, is in the basement of the school; and with our open passages and stairs, the steam and smell, particularly in winter, permeates the whole building.

Water Supply.—This has been put into a safe and satisfactory condition. A new well was dug some distance from the school, a good and pure supply of water obtained and precautions were taken to select a spot least likely to suffer contamination.

Fire Protection.—Fire-protection is ample. We have a standpipe from the bottom of the tank in the attic, reaching to the basement, with hose conveniently placed for connection therewith on each floor. A second length of hose on each floor is connected with a McRobie chemical tank. In addition there are fire-axes, small Star extinguishers, and fire-pails, conveniently placed.

Heating and Lighting.—The heating is done by a combination system of hot air and hot water. The latter part of the system works very satisfactorily, but the hot air, as usual in this country of high winds, is not so certain in a storm. The whole system has been repaired and put into thorough working order. The fuel used is hard anthracite coal.

The lighting is still done by coal-oil lamps. With the advent of a gas company in Calgary and the consequent competition between it and the Electric Light Company, we may soon be able to have the whole place lit by some other means, in a cheaper though equally safe manner.

Recreation.—Football continues to have its strong hold over these boys as their chief game. A reading-room has been provided in the basement and some kind friends supply us with illustrated papers, which are read and understood. There are also chess and draught tables, two of each, which in the winter evenings are seldom unoccupied during play hours.

General Remarks.—This report would not be complete without a reference to the death of the late Inpector McGibbon, which occurred so suddenly in Calgary. He had endeared himself to all those here who knew him, and we were all able to testify in some measure to our respect by attendance, staff and pupils, at the funeral service held in Calgary.

I have, &c.,

GEO. H. HOGBIN,
Principal.

NORTHWEST TERRITORIES,
QU'APPELLE INDUSTRIAL SCHOOL,
LEBRET P.O., October 19, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my report for the fiscal year ended June 30, 1904.

Location.—This school is situated in the Qu'Appelle valley, four and one half miles east of Fort Qu'Appelle and eighteen miles north of the Canadian Pacific Rail-

way, though twenty-four miles from Qu'Appelle station by the trail. It is not situated on a reserve, but is in a central position for the Assiniboine, Crooked Lakes, File Hills, Muscowpetung, Touchwood Hills, and Sioux reserves.

Site.—The site is picturesque, the buildings being on a slightly elevated flat between two large bodies of water ; fronting to the west and south on the Qu'Appelle lake with the village of Fort Qu'Appelle in the distance. To the north are steep hills of irregular formation some three hundred feet high, divided by a broad wooded valley running in a northerly direction, and containing a small creek ; while the eastern view presents the Katepwe hills and lake in the distance and in the immediate vicinity the village of Lebret.

Land.—The area of land belonging to this school and immediately surrounding it comprises about five hundred and nine acres, all in township 21, range 13, west of the 2nd meridian ; it was specially surveyed and reserved for the purpose by the Department of the Interior and is made up of parts of different sections ; about fourteen acres on the northwest corner of section 2, on which the school-buildings and garden are situated, about one hundred and twenty-five acres on the west side of section 11. This is nearly all coulee and side hills covered with scrub, but was required for a roadway to the farm on top of the hill. About two hundred and ninety acres, or the east half of section 10, is badly cut up by hills and ravines, but has some arable land, it affords fair pasturage in wet seasons; eighty acres, or the west half of the southwest quarter of section 14, is good land, but badly cut up by sloughs. Besides the above and about five miles northwest of the school we have three quarter sections reserved for hay purposes; of these the northwest ¼, section 34, township 21, range 13, west of the 2nd meridian, was bought by the department for hay purposes, has some arable land but was much cut up by shallow sloughs, which yield a fair quantity of hay in favourable seasons ; the other quarter sections are northwest ¼, section 34, township 21, range 13, both west of the 2nd meridian. Off these we are getting as much under cultivation as possible. The land is good, but scrubby and rolling, producing some hay and supplying valuable grazing for horses not in use.

All the above parcels of land are fenced in with barb-wire fencing.

Buildings.—I regret very much that our main buildings were destroyed by fire on January 4, 1904.

Accommodation.—The present number of children are provided for, considering our circumstances since the fire.

Attendance.—The attendance for the year has been satisfactory.

Class-room Work.—There were two hundred and twenty-five pupils enrolled at the end of June ; ninety-eight boys, and one hundred and twenty-seven girls. The grading under the schedule of studies prescribed by the department was as follows :—

		Boys.	Girls.	Total.
Standard	I	15	19	24
"	II	10	22	32
"	III	46	43	89
"	IV	14	15	29
"	V	9	12	21

The first and second standards attend class six hours each school day, when practicable, in order to become as proficient as possible in the use of the English language, before learning any industry. The higher standards attend class half each day and work at the trades the other half; as a rule in busy seasons on the farm or in the garden, all the boys and sometimes the girls, are engaged the whole day at outside work under the supervision of their teachers.

Farm and Garden.—The area of land under cultivation is about three hundred and five acres. Twenty boys were regularly attached to the farm and worked as re-

quired, the other boys and girls, as their turn came, did the milking, and all the boys and girls assisted on the farm when necessary.

Stock.—Our stock is in excellent condition and comprises one bull, seventeen cows, eleven heifers, two steers, nine calves, twelve work horses, seven colts, sixty swine and a lot of poultry.

Industries Taught.—*Blacksmith Shop.* Four boys worked at this trade and a good deal of custom work was also done, besides all work required for the school.

Shoe Shop.—Eight boys assisted the shoemaker in making and repairing boots, shoes and harness.

Bake Shop.—Four boys assisted the baker, doing all the baking for the institution. pickling pork and beef, smoking bacon and fish, and supplying the house with ice and meat cut into suitable sizes for kitchen use.

Carpenter Shop.—Eight boys worked in this shop. A great variety of work was done for the school and outsiders in carpentry, cabinet-making and repairing vehicles, and implements. Several buildings were erected under contract. A new storehouse, school-rooms, kitchen, ice-house and dairy were built for the school.

Paint Shop.—The night watchman instructs the boys in this department. As we are short of big boys, and it is unlikely any will follow this trade for a living, none are permanently attached to this shop. Besides doing the painting, plastering, stone and brick work, for the school, looking after the fire-appliance and running the gasoline pumping engine, the night watchman makes regular rounds of the whole building every night during the winter.

Tinsmith Shop.—We had no regular tinsmith until March, when we got an experienced man. Since March three boys worked in this shop and helped the tinsmith in a lot of work for the school and outsiders.

Girls' Work.—Under the direction of the reverend sisters, the girls learn all kinds of housework, cooking, dairying, laundry work, and make their own clothes and also the greater part worn by the boys; they assist in the garden, milk the cows in summer and have entire charge of the poultry.

Moral and Religious Training.—All the employees are required to set a good example and develop in every possible way a sense of responsibility in the pupils.

The assistant principal and teachers attend specially to their moral training and general manners. On Sunday and every day during the winter months I hold a class for the whole school, when I give religious instruction for one hour after class work. Chapel is attended night and morning daily and the Lebret church morning and afternoon on Sundays.

Conduct.—The conduct for the past year has been very satisfactory.

Discipline.—As there is a regular system and efficient staff, there is no difficulty in maintaining order.

Health and Sanitation.—On the whole the health of the pupils has been excellent. Last spring there were a few cases of influenza, a few cases of eye and skin diseases. The physician in charge inspects frequently, and conditions conducive to health are maintained by an abundant use of vegetables and wholesome food carefully prepared; by cleanliness of person and premises, by clothing adapted to the seasons and by plenty of outdoor exercise, drill and calisthenics. The ventilation and sanitary conditions are good considering our circumstances since the fire.

Water Supply.—We have an abundance of good water. We have four Patton gasoline fire-extinguishers and three hand-grenades, with fire-pails filled with water distributed about the various buildings.

Heating and Lighting.—The various buildings are heated by stoves since the fire; the various trade shops are also heated by stoves. Lamps, burning coal oil and acetylene gas, supply the light.

Recreation.—The boys play baseball, football, hockey, prisoner's base, hide and seek, tops, marbles, &c. Besides their large playgrounds, they are allowed to roam about the surrounding hills and valleys.

The girls have a large tree-shaded playground, with swings, seats, tables, and other means of recreation. In summer-time both boys and girls enjoy bathing in the lake and in winter-time they skate upon it. The indoor games in vogue are those usually found in white schools.

Admissions and Discharges.—Fifteen children were admitted during the year; eight boys and seven girls. Twenty-four pupils were discharged, nine boys and fifteen girls.

Ex-pupils.—Favourable reports of progress of ex-pupils are received from agencies where their interests are looked after and where they are taken hold of and urged on in the direction of civilization and self-support. On going back to the reservation from school they have much to contend with if they persevere in civilized habits, as the old people and dancing set bitterly oppose all progressive ideas and methods and endeavour by ridicule or cajolery to get the new arrivals to join their ranks.

Few people, in fact those only who are acquainted with and have studied the evil effects of pagan dances as they affect the moral and physical welfare of the Indians, realize the important step taken by the department in the total suppression of such dances in this district. Usually the dance was the first downward step in the career of ex-pupils, as when once they become dancers, progressive ideas and actions are abandoned—on account of the ridicule they provoke from the dancing set—for gambling, debauchery and slothfulness.

With the new order of things and the close settlement of a good class of white people near the reserves, ex-pupils will have far more chance of succeeding in the future than they had in the past, and as the abandonment of the ration system necessitates effort in order to exist, they naturally practise the occupation they have become familiar with in school. The tendency of the Indians of this district towards progressive methods and civilized manners is very marked, we have practically no trouble with the parents of children, but changing the mode of life, and even of thought of a whole tribe, requires two or even three generations of persistent effort and not ten or fifteen years as some people seem to expect.

General Remarks.—A number of visitors from all parts of the world breaking their transcontinental journey and attracted by the rich farming country, the shooting and hunting or the beautiful scenery of the Qu'Appelle district and lakes, paid a visit to the school.

In conclusion, I would say the Indian agents on the surrounding reserves have given me great assistance; that when there has been any necessity for their services the Northwest Mounted police have always been prompt and efficient and that my present staff and employees are performing their duties in a satisfactory manner.

I have, &c.,

J. HUGONARD,

Principal.

NORTHWEST TERRITORIES,
RED DEER INDUSTRIAL SCHOOL,
RED DEER, ALTA., August 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Location.—The school is situated on the north bank of the Red Deer river, about three miles west of the town of Red Deer, Alberta. It is not located on a reserve, the nearest being about forty miles north of us. The natural features of the country immediately surrounding the school are as pleasing as could be desired. The broad and

rushing river about one hundred feet below forms our southern boundary; while our eastern and western border lines are two deep-banked creeks, affording scenery as fine as any in this part of Alberta. Though we are only three miles from town in a direct line, the winding trails, still almost the only roads in this part of this new country, make the distance to be travelled in reaching it from the railroad considerably greater.

Land.—The land is as good as any to be found in Canada, and well adapted to mixed farming. It consists of three-quarters of section 14, township 28, range 38, west of the fourth meridian. To this was recently added, by gift of the government, some fourteen acres of section 15, lying between the original school property and a huge gully two or three hundred rods west. We have also a lease of an adjoining section for grazing purposes, and another section a couple of miles away for hay-land. These bring the acreage under control of the school at present up to about seventeen hundred and fifty acres.

Buildings.—The buildings are as follows : the original school building of gray stone, erected about twelve years ago ; though the whole school, including principal and staff, were at first housed here, it is now occupied only by the girls, the boys under ten years of age and the female members of the staff ; it also contains the offices, store-rooms, dining-room, kitchen, laundry, &c.; a three-story brick building erected several years ago, containing the dormitories, play-room, wash-room, &c., of the larger boys; the third story of this building is used as school-room and chapel.

In addition to these main buildings, there is a neat and commodious residence for the principal, two cottages occupied by married male members of staff, a black-smith shop, a carpenter shop, ice-house and refrigerator combined, pig-pen, cow-stable, horse-stable, hen-house, engine-house, dairy, implement-house, and three closets.

During the past year, an old unused well-house has been converted into a very useful wood-house for the principal's residence; and similar accommodation has been provided for the main kitchen by taking down an unused stairway adjoining, and making necessary changes in the room it occupied. These improvements were greatly needed and were secured at a trifling cost. A good building, twenty-eight feet square, has also been added for the horse-power in connection with our new water system. Many repairs and re-arrangements have been made, greatly adding to the comfort of the staff and pupils, among these the following : the wash-room and bath-room have been taken out of the basement of the boys' building, and suitably arranged on the first floor ; the boys' play-room has been enlarged by taking down certain unnecessary partitions; a well-lighted reading-room has been arranged, where profitable recreation will be provided for the long winter evenings; the boys' dormitory has been divided, separating the big boys from the smaller; suitable lockers have been constructed for the boys' extra clothes; the unsatisfactory room used as dining and sitting-room for the staff has been devoted to other purposes, and a very comfortable dining-room and sitting-room have been provided elsewhere.

Accommodation.—We have accommodation for ninety pupils and a staff of nine.

Attendance.—The year began with fifty-seven names on the roll, several of whom were home-sick, and have since been discharged. The number now enrolled is eighty-four; and, before the discharge of those who had attained the age of eighteen years, at the end of June, it was over ninety.

Total on register, July 1, 1903	57	
Admitted during the year	41	
Total		98
Discharged	11	
Died	3	
Total		14
Total on register, July 1, 1904		84

Class-room Work.—The progress made during the year has been very satisfactory. In January, a second teacher was secured, as one could not properly attend to the work. A primary room has been fitted up in the third story of the main building, and all the beginners are cared for there. The following were the numbers in the several grades during the quarter just closed :—

	Pupils.
Standard I.	44
" II.	15
" III.	15
" IV.	13
" V.	5
Total.	92

Farm and Garden.—A great effort has been made during the past year to increase the acreage under cultivation, toward which effort the department has kindly contributed by making a special grant for necessary equipment. Seventy-five acres have been redeemed from the wilderness, and is mostly in crop at the present time. As our land is very heavily timbered, or has been in the recent past until denuded of its timber for fire-wood, a large amount of effort and expenditure was required to produce this result. This gives us about one hundred and fifty acres under cultivation this season, and the yield of grain will consequently be much greater than ever before. An assistant farmer was necessary, and was secured a few months ago. We hope to keep on breaking up the land until the present area under crop is at least doubled. We have ninety acres of oats, twenty of barley, ten of wheat, ten of timothy, five of flax, ten of garden, and about five acres occupied by buildings and grounds. We have eighty-five head of cattle, twelve horses, over fifty hogs, five sheep, and about two hundred fowl. Our live stock has increased in value during the year from $2,713 to $4,444.

Industries Taught.—The senior boys are made familiar with every department of farm work, and when they graduate should be quite capable of running a farm of their own, including the care of stock and the use and care of machinery. Carpenter work is the only other branch of industry taught the boys at present, though we hope soon to add a shoe-shop. Six boys have been employed in the carpenter-shop during the past year, some of whom are quite efficient workmen.

The girls are all taught housework, dairy work, and sewing; and some attention is devoted to fancy-work.

A number of pupils of both sexes have been given instruction in instrumental music during the year, and in some cases great aptness has been manifested.

Moral and Religious Training.—Regular religious instruction has been imparted. Morning and evening prayers are held. We have all the religious services of a well-regulated church. In addition, we aim to have on our staff only such men and women as will, by example as well as precept, emphasize and illustrate the principles of Christian citizenship.

Health and Sanitation.—Special attention has been given during the past year to these important subjects. Among other efforts made have been the following, entailing a large outlay, which the department generously authorized and met: first, a new water system, substituting a sufficient supply of good spring water in all the buildings for the impure water previously used; second, a new six-inch sewer, in place of the old four-inch one, which had got into great disrepair. The sewer is not yet connected with the buildings, but will be in the immediate future. There has been no discouraging amount of sickness, and but half the number of deaths occurring last year.

Fire Protection.—The school has five Babcocks, seven Star fire-extinguishers, ten fire-pails, and ten axes.

Heating and Lighting.—Two Smead-Dowd and two Pease furnaces are used in the main buildings with satisfactory results. Coal oil is used for lighting. The cottages are heated with stoves.

Recreation.—The girls take outdoor exercise by swinging, skipping, walking, and sometimes at football. The most popular amusement among the boys is football, though baseball is also indulged in. The bigger boys are sometimes allowed to hunt, in which they are quite expert, providing wild fowl for the whole school a number of times. There is also good fishing right at our doors, the river being full of fine fish including magnificent mcuntain trout. Skating is very popular as a winter sport with the boys and girls.

I have, &c.,

J. P. RICE,
Principal.

NORTHWEST TERRITORIES,
REGINA INDUSTRIAL SCHOOL,
REGINA, ASSA., September 15, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Location.—The school is situated on the north half of section twenty-eight, range twenty, west of the second meridian. The site lies on the high west bank of the Wascana, and commands a splendid view of the busy city of Regina four miles to the eastward. The school is not situated on a reserve.

Land.—Our land area is ample for our present needs. The half section originally purchased by the department was increased last year to a section and a half by the addition of the section adjoining it on the west. Only a third of this area is broken as yet, the rest being used for pasture ; but more is being broken year by year. The soil is a heavy clay, and though very difficult to work pays well for the labour that is put on it. It is best suited for wheat and oat growing. In marked contrast to the neighbouring farms our land is comparatively free from weeds—a condition which requires continued vigilance.

Buildings.—The school is a two-story white brick structure, consisting of a main building facing east and two wings at the north and south respectively. In the main building are the following rooms: on the first flat, office, dispensary, reception-room, pupils' dining-room, kitchen and scullery, private dining-room, and sewing-room ; on the second flat, ten teachers' rooms and a dormitory for the smaller boys. The south wing consists of a large assembly-room below and the larger boys' dormitory above. and the north wing has the senior and junior school-rooms below and the girls' dormitory above. Attached to the dormitories are bath-rooms and clothing store-rooms. A commodious basement underlies the whole building, containing seven furnaces with their air-rooms and coal bins, boys' and girls' winter closets, gas generator-room, dairy and winter play-rooms. In the top of the building is an attic, having four story-rooms for winter clothing and three large water tanks. The other buildings are : a two-story brick principal's residence, one-story frame cottages for the mechanical and farm instructors, a two story frame tradés-building (containing carpenter shop, paint-shop, shoe-shop, pinting office, hardware store-room and grain-crusher room), two implement-sheds, a blacksmith-shop, barn, cow and horse stables, two hog-

pens, a granary, two pump-houses, an ice and meat house, a bake-shop with grocery store-room adjoining, lumber-house, band stand, &c. The following buildings were erected during the year; a brooder-house for the accommodation of our flock of three hundred pure-bred chickens, a cement engine-house built entirely by our own boys and a band stand to replace the old one, which was blown down. The engine-house, in particular, is a very substantial building and affords ample room for our traction engine and leaves space besides for a gasolene engine which has been promised us by friends of the school. This engine-room is connected with the carpenter-shop and from it the power is transmitted to pulleys in the shop for turning the various lathes, drills, circular saws, emery stones, &c.

Connected also by means of pulleys and shafting is the new crusher which was presented to the school by Brandon friends. This is a handsome machine, capable of chopping eighty bushels of grain per hour. It has done considerable custom chopping as well as doing our own work. In addition to this, many repairs have been made of which the following are a few: a new floor in the senior school-room, new stairs on the boys' side, piping and gas fixtures in the teachers' rooms, letter-boxes and cabinet for the office, new seats for the school-room, &c., &c.

Accommodation and Attendance.—We have ample accommodation for a hundred and fifty pupils and a staff of twelve. The average attendance for the year was about eighty-eight pupils, fifty-six of whom were boys and thirty-two girls. Quite a number, being under age, draw only half grant.

Class-room Work.—This part of the pupils' education has been in the hands of two duly qualified and competent teachers. The grading of the pupils is as follows :

Standard	I, part 1	14
"	I, part 2	10
"	II	10
"	III	13
"	IV	24
"	V	6
"	VI	11

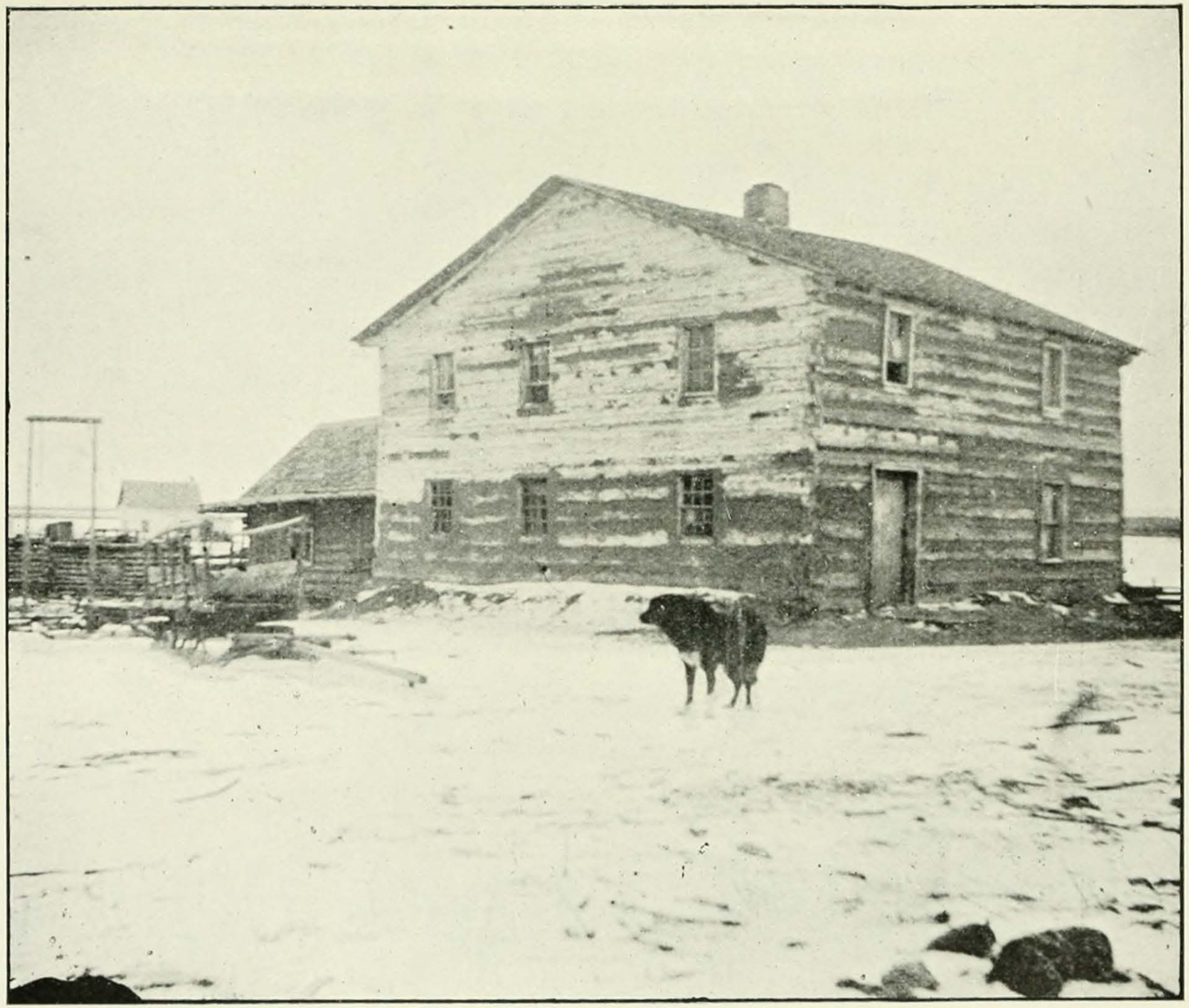
The half-day system—half the day in class work and half in industrial work—is employed with all but standards I and II. In exceptionally busy seasons the larger pupils work outside the whole day, but this is made good to them in the slack days of winter, when they attend school all day.

Farm and Garden.—This continues to be regarded as the most important part of the industrial work. The farm last year produced 1,610 bushels of wheat, 1,313 bushels of oats, 653 bushels of potatoes, 50 bushels of turnips, besides considerable brome-grass hay and pasturage. The early frosts of last fall injured most of the wheat crop, but through feeding to hogs, about as much money was realized out of it as out of the previous crop. Of course this entailed much additional work, but this was counterbalanced by the extra training the boys got in feeding.

The backward spring this year kept us late in seeding, and indications point to possible injury from frost again before this crop is harvested.

In addition to supplying the tables of pupils and staff and leaving out of account what was marketed green, the garden last year yielded approximately : ten bushels of beets, ten bushels of carrots, five bushels of parsnips, thirty bushels of onions, ten bushels of salsify, two hundred head of cabbage, and one hundred head of cauliflower. Both girls and boys received instruction in gardening, forty-five of them having individual plots. The proceeds of half the produce of these plots (including what was sold in town, green) went to the respective owners of the plots. Six prizes were also given for the best kept plots at the end of the season.

Valuable instruction was also given in threshing to the boys who made up the school outfit. Besides the engineers, several received instruction in the care and operation of the separator, and prizes were given for the best work done in the quick



View of C. E. Boarding School, at Wabisca, now Burnt. [385]

and regular feeding of the machine. Several neighbours inform us that the general opinion in the district is that our school outfit did the best threshing of the season, and all for whom they worked have spoken enthusiastically of their good conduct. All boys, excepting those receiving engine and separator instruction, are paid at the rate of a dollar and a half per day, for all work done at threshing, outside of the regular half day due the school.

The stock is in excellent condition, numbering 12 horses, 28 cattle, 111 swine, and 295 poultry.

Industries Taught.—*Farm.*— All the boys are taught agriculture and in addition sufficient of other trades to make them intelligent and resourceful. The Socratic method is followed, as far as possible, so as to give the maximum amount of mental development in connection with instruction in all departments.

Carpenter Shop.—Nine boys received instruction in the carpenter-shop, most of whom were trained also in painting, glazing, steam and gas-fitting.

Printing Office.—Seven were employed in the printing office, a number of whom have become expert type-setters. Not to mention the value of the trade in itself, the printing office is a splendid means of teaching composition and spelling.

Engine-house.—Five boys have at different times been under the instruction of the engineer in the management of the traction engine. They have all acquired a pretty thorough working knowledge of the engine and are getting valuable experience in locating the common ailments of engines, making field repairs, &c., under Mr. Tripp's able teaching.

Bake Shop.—Seven boys had their turns in this department. We have no baking instructor, the system followed being to have one experienced boy and one apprentice in the shop at a time. The bread they turn out is as a rule very good. On several occasions visitors from Regina have taken loaves home with them, saying it was better than they could get in the city. Perfect cleanliness in person, shop, ovens and fittings is always insisted on.

Shoe Shop.—Three boys spent the winter months in the shoe-shop, repairing shoes and harness.

Girls' Department.—Under the instruction of the matron and other ladies of the staff the girls are taught all the branches of housekeeping, including baking, cooking, sewing, laundry work and dairying. Four or five have become quite expert nurses. The garden supplies all with plenty of outdoor work.

Moral and Religious Training.—Two regular services are held in the school every Sunday, and Sunday school in the afternoon. Nearly all the staff teach in the Sunday school. Instead of a sermon, at the Sunday evening service, chapters are read from such books as Pilgrim's Progress, Booker Washington's 'Up from Slavery' and 'Character Building' by the same author. These books have made a deep and, I believe, a permanent impression, and the reading of them has stimulated a new interest in books among many of the pupils. Besides these Sunday services, morning and evening prayers are conducted daily by the principal or his assistant, and an effort is made by every member of the staff to inculcate religion and morals in connection with every department of work. Constant emphasis is laid on the moral and religious significance of the work done, showing for example the tendency of careless and inaccurate manual work to produce looseness of morals, such as untruthfulness, unreliability, unfaithfulness, &c.

Health and Sanitation.—The health of pupils and staff has been good. The outdoor tent policy for those who lose in weight is still adhered to with the same good results. One pupil, No. 169, died in January of consumption, and another, No. 108, died in May after an operation for cancer of the bowels.

Water Supply.—The supply of water of the best quality for the house is adequate. It is pumped with little expense into tanks in the attic by means of a Rider hot-air engine. During the extreme cold weather of winter, the Wascana usually freezes

solid, and the obtaining of sufficient water for the stock is sometimes a difficult problem.

Fire Protection.—The water tanks in the attic connected with reels of hose in various parts of the building, together with a McRobie fire-engine, four Stempel extinguishers and numerous grenades distributed along the various halls, furnish an ever ready means of fighting fire.

Heating and Lighting.—Our heating system is several degrees short of perfection. We burned last year very little short of three hundred tons of soft coal. Even at that we were none too warm. The long rambling shape of the building makes it very difficult to heat by the hot-air system, especially during the stormy days, of which we had many last winter. Our mechanical instructor, Mr. Tripp, tried the experiment of introducing hot-water coils in connection with the Smead-Dowd hot-air furnaces, in two of the rooms, and with marked result.

The lighting is excellent. The acetylene gas system is a little more expensive than coal-oil lamps, but at the same time it is immeasurably better, safer, and more convenient. The beneficial effect of the bright illumination on the spirits of the pupils has been marked.

Recreation.—Football, baseball and lacrosse are the principal sports with the boys; with the girls basket-ball is the chief outdoor game. All kinds of indoor games enliven the winter evenings, or such of them as are not employed in study or instruction.

General Remarks.—The additional equipment in the shape of machinery and the general improvement of the buildings has produced a marked improvement in the general spirit and interest of the pupils. Very few are now found anxious to get their discharge, and there are many indications of an increased desire to make the most of the opportunities for improvement that the school affords. Visits and correspondence with graduates have given much encouragement, especially in the evidences of the hold that our school has upon their affections and their manifest earnestness in the effort to make records that will not disappoint the expectations of their alma mater. Recently one of our girl graduates lost her youngest child and her husband by death within a month. As soon as the child was dead the relatives, according to pagan custom, seized and carried off everything of value about her house while she was watching at the bedside of her dying husband in a tent a little distance away. They even opened her trunk and carried off her personal clothing. Hearing of their distress, we sent a small relief donation from the staff and pupils of the school. The letter of acknowledgment was most touching. After thanking us for the assistance, and urging me to come and see her husband, she showed her concern lest we should be disappointed in their surroundings in the following words : 'You may not find us as you expect ; we are below the standard just now, but don't be afraid, Mr. Sinclair, we shall try and do better if God permits. If it is His will that I should do it alone, I will and He will help me. I think it would do ——— a great deal of good to have the principal of our dear Regina school come and see him.'

In addition to the graduates mentioned in last year's report, whose good records are continued, it was a great pleasure to see Graduate Albert Fiddler, following his trade in the Pelly agency and building some very pretty substantial houses, one of them being a residence for Principal McWhinney, of the Crowstand school. In neatness and speed, Albert's work compares very favourably with the best white carpenters of the west. James Friday, another graduate, is the missionary's efficient interpreter on the same reserve, and his wife, ex-Pupil Jessie Fox, keeps a house which is a model of neatness.

Both from employers of our graduates and visitors to the school we have had frequent voluntary mention made of that intelligence and quickness of resource for which we are especially striving in our plan of industrial education. We are aiming not

merely to produce good grain and stock-raisers and good housekeepers, but in the process of training for these occupations we are seeking through proficient teachers and instructors (every instructor should know the science of teaching) and by means of proper equipment to develop as highly as possible all their powers of hand and head and heart.

One of the greatest weaknesses of the Indian character is its lack of resource and readiness to give up in the face of difficulties. As much emphasis as possible, therefore, should be placed on the development of general intelligence, and especially along the line of investigation and invention in contact with concrete things.

In closing, I wish again to bear grateful testimony to the courtesy and consideration received from the officers of the department, and to the energetic, cheerful and efficient services rendered by the school staff. It is often a wonder to me how a staff can be induced to give so much more work for the money in this service than in other occupations. Extra long hours, privation from social pleasures, the strain of responsibility, and spontaneous planning and undertaking extra work for the good of the pupils, are all assumed with a cheerfulness that is most inspiring.

I have, &c.,

J. A. SINCLAIR,
Principal.

NORTHWEST TERRITORIES,
HIGH RIVER INDUSTRIAL SCHOOL,
DUNBOW, ALTA., July 19, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I beg to submit my annual report for the fiscal year ended June 30, 1904.

Location.—The school is beautifully situated in a valley, on the right bank of High river, two miles from Davisburg post office, and about twenty-five miles southeast of Calgary. It is not on a reserve.

Land.—Sixteen hundred and twenty acres of land are used in connection with the school. Immediately surrounding the buildings there are ten hundred and sixty-three acres, as follows : the east half of section 22, township 21, range 28; half of the southwest quarter of section 26, township 21, range 28; thirty acres of section 15, township 21, range 28, on the north side of High river; and all of section 27, township 21, range 28, west of the 4th meridian. Most of this land, which comprises the home farm, consists of good bottom and bench lands, and, notwithstanding hills and ravines, is fairly well adapted for farming purposes. The rest of the school property, namely, the east half of section 26, township 20, range 27, and the north half of section 36, township 20, range 27, west of the 4th meridian, which is held as a hay reserve, is situated twelve miles southeast of the school.

All of the above land is the property of the government.

Buildings.—There are two main buildings, one for the girls, and the other for the boys. The boys' building, which is the larger one, contains the principal's room, reception-room, office, play-rooms, lavatories, a small store-room, two class-rooms, the dormitories, the boys' infirmary and rooms for the members of the staff. In the girls' school, of which the reverend sisters have charge, are the kitchen, dining-room, chapel, class-room, dormitory, sewing-room and lavatories. The workshop, lumber-shed and bakery are west of the boys' building and in line with it. About two hun-

dred yards to the rear of the main buildings and parallel to them are the stables, granary, implement and carriage-sheds. Behind these again, are the piggery, calf-shed, cattle corral and slaughter-house. The hospital, engine-house, and laundry, three separate buildings, are situated on the banks of the river some distance to the east of the girls' house. The situation of the school is picturesque, and from a distance, the establishment has the appearance of a pretty little village.

A large stable for fattening steers was built last fall. It measures 128 x 32 feet, with a roomy hay-loft, and holds about fifty-four head of cattle. We have been unable, with the funds at our disposal, to shingle the roof, and this has been a cause of considerable damage and trouble during the soft spring weather. However, we hope to be able soon to remedy this, and to completely finish the building. Since last report, our slaughter-house has been put on a stone foundation and sheeted outside. This has added to the cleanliness and appearance of the building. The fire-escapes of the girls' buildings, which were falling into decay, have been completely renewed.

Accommodation.—There is accommodation for 125 pupils and a staff of twelve.

Attendance.—The attendance for the year averaged seventy-five. Admissions, six; discharges, five.

Class-room Work.—Regular school hours are observed, namely, from 9 a.m. to 12 o'clock, and from 1.30 to 4 p.m., with intermissions. The prescribed programme of studies is adhered to. The junior pupils attend class for five days in the week. The seniors follow the half-day system.

Examinations are held twice a year, and promotions are made in accordance with the progress shown by the pupils. The children were graded as follows at the June examinations :—

	Pupils.
Standard I.	14
" II.	17
" III.	26
" IV.	11
" V.	7
" VI.	3

Farm and Garden.—We have 240 acres under cultivation. There are seventy-three acres of oats, four of wheat, thirteen of barley, twenty-two of roots, besides sixty acres of brome, which was seeded down four years ago. Fifty acres are summer fallowed and eighteen acres of new land were broken this spring. The weather, so far, has been rather dry, still, the prospects of a fair harvest are promising.

We had from last year's crop, 1,301 bushels of oats, 190 bushels of barley, 175 bushels of wheat, 1,200 bushels of potatoes, 8,000 bushels of turnips, 300 bushels of mangolds, and a large yield of carrots, cabbage and other vegetables ; 400 tons of hay were put up.

Stock.—Our stock comprises thirty-one horses, two bulls, forty-five cows, thirty-two heifers, thirty-six steers, thirty-five calves, eleven pigs and 120 poultry. The herd supplies the school with almost all the beef required, and we were able to sell our surplus beef steers at a good figure. The proceeds from live stock and farm produce sold during the fiscal year amounted to $2,687.34. We sold five head of thoroughbred cattle, and took third prize for our stallion, and second for a pure-bred cow and calf at the Calgary spring show.

Industries Taught.—*Farming.*—We regard farming as a most important industry, and particular attention is given to the care and management of stock. Throughout the year the senior boys work at least half a day on the farm, and during haying and harvesting the whole day is devoted to work. The smaller boys help in weeding the roots and gardens, feeding pigs and other light work. Every boy in the senior division is taught how to milk.

All our hay, coal, lumber and other supplies are hauled by the farm teams in charge of the boys. The boys also handle the teams in ploughing, mowing and seeding, thus gaining a practical knowledge of all branches of farming.

Carpentry.—Six boys have been employed at this trade. During the year the work done by the boys in this department included the erection of the steer-stable, the new fire-escape, the sheeting of the slaughter-house, and other repairs and alterations to buildings and furniture. In the busy time of haying and harvesting the carpenter boys did their share of the work in the fields.

Needlework.—Under the direction of the reverend sisters, the girls are taught sewing, knitting, repairing clothes and darning. They make almost all the clothing required by themselves, as well as a large portion of the boys' clothing. When not in class or recreation, they are continually employed at household duties. All are taught cooking, baking, dairy and laundry work.

Baking.—The baker, assisted by the boys, bakes for the school, does the butchering, attends to the ice-house and cuts up the meat for the kitchen. When not otherwise employed, he works on the farm.

Shoemaking.—No regular instructor is engaged. Some of the bigger boys have a fair knowledge of the trade, and, from time to time, make necessary repairs to harness.

Moral and Religious Training.—Pupils are instructed in the doctrines of Christianity, and are led to apply its teachings in their daily lives. Catechism is taught regularly. Morning and evening prayers are said in common, and all attend divine service on Sundays and holidays.

The conduct of the children has been very satisfactory. Discipline was efficiently maintained without employing severe measures.

Health and Sanitation.—The health of the children has been very good. No deaths occurred during the year. Only one boy was seriously ill, and he was sent home on the doctor's recommendation, as it was thought that a change of air would benefit him.

The school is in an excellent sanitary condition.

Water Supply.—We have an abundant supply of good water, which is pumped from a well near the river, into tanks at the top of the main buildings.

Fire Protection.—Three tanks, two in the boys' building, and one in the girls' school, are kept full of water. These tanks, having a capacity of fourteen hundred gallons apiece, are situated immediately under the roof of each building. On every story there are one hundred feet of hose connected with pipes from the tanks. There are fire-extinguishers and hand-grenades in the different rooms, and fire-pails filled with water are kept in convenient places. We have eight fire-axes, eighteen fire-extinguishers, fifty-five hand-grenades and forty-seven fire-pails. Each of the dormitories is furnished with a fire-escape.

Heating and Lighting.—The large boys' building is heated by four hot-air furnaces, two of Gurney's and two of Pearce's stoves are used in the girls' building. Coal-oil lamps supply light.

Recreation.—Two and a half hours each day are devoted to recreation. Healthful outdoor sports are heartily encouraged. Baseball and hockey are the principal games. Out of eight matches, with outside clubs, last winter, our hockey team succeeded in winning seven games. The proximity of the river affords ample opportunities for fishing. All the children are fond of the water, and many of them are fairly good swimmers. The girls enjoy themselves at croquet, swinging, skipping, taking long walks in summer and skating in winter.

I have, &c.,

A. NAESSENS,
Principal.

BRITISH COLUMBIA,
AHOUSAHT BOARDING SCHOOL,
AHOUSAHT, July 2, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the first annual report of this school for the year ended June 30, 1904.

Location.—This school is located on Maktosis reserve, Flores island, off the west coast of Vancouver island.

Land.—There is on land belonging to the present buildings.

Buildings.—At present this school occupies temporary quarters in the mission house and school-house belonging to the Presbyterian Church on Maktosis reserve. A new building, 46 x 68 feet, two stories, with basement and attic is in course of erection and is expected to be ready for occupation in September of this year. This building is on a tract of land of 140 acres lying immediately south of Maktosis reserve, recently purchased by the Presbyterian Church. It fronts on a small bay and looks across the North arm, here about a mile and a half wide. It faces east and has a fine view of the Catface mountains and snow-capped peaks up North arm and Herbert arm. Some two hundred yards to the rear there is a fresh-water lake of fifteen to twenty acres extent.

Accommodation.—The accommodation of the present temporary quarters is limited, but when the new building is completed this will be remedied.

Accommodation.—The accommodation of the present temporary quarters is limit-
year, and five boys and two girls discharged. The average attendance was twenty-three.

Class-room Work.—The programme of studies authorized by the department is followed, with adaptation to special needs. Good progress has been made in the school work, especially in English and arithmetic. English is the only language spoken in the school. The classification of the school at the close of the year is as follows :—

	Pupils.
Standard I.	9
" II.	5
" III.	9
" IV.	2
	25

Industries Taught.—The pupils of this school are all young, only one of the boys having reached the age of fourteen, and none of the girls being over thirteen. The boys cut wood, assist in laundry work, baking bread and other housework, and take care of their sleeping-rooms. The girls do housework, baking, sewing &c. All attend school both forenoon and afternoon.

Moral and Religious Training.—The children attend church service, Sabbath school and a song service every Sabbath. Family worship is held morning and evening. The conduct of the children has, on the whole, been very good.

Health and Sanitation.—The health of the pupils has been good. There has been little illness of any sort and none at all of a serious nature.

Farm and Garden.—There is no land belonging to the present buildings and none near that can be cultivated.

Water Supply.—Most of the water used is obtained from rainfall.

Fire Protection.—The protection against fire consists of one dozen buckets, filled and conveniently placed.

Heating and Lighting.—The school is heated by stoves. Ordinary lamps are used for lighting.

Recreation.—A fine beach, directly in front of the school, provides a good playground on which boys and girls play various games. All are very fond of swimming, canoeing and surf-riding. In winter evenings they play various indoor games.

General Remarks.—Agent Neill has rendered us every assistance in the organization and conduct of the school. His kindness and consideration have been much appreciated.

I have, &c.,

J. C. BUTCHART, B.A.,

Principal.

BRITISH COLUMBIA,

ALBERNI BOARDING SCHOOL,

ALBERNI, July 28, 1904.

The Honourable

The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit the annual report of this school for the year ended June 30, 1904.

Location.—This school has a beautiful location. It is built on a plateau about sixty feet above the level of the garden, which it overlooks; at the back of the school the country rises to a higher level, and is heavily timbered, giving abundant shelter from the prevailing winds. In front of the school, and about two hundred yards away, flows the beautiful Somas river, and from the school-grounds we obtain a splendid view of the river, with Alberni about two miles and a half distant. On the same plateau across the road which divides this property from the reserve, is the Shesaht village; about one mile down the river on the opposite side are the Opitchesahts.

Land.—There are sixteen acres of land in connection with this school. The sixteen acres are part of lot 81, district of Alberni. The land is owned by the Presbyterian Church. The land was originally heavily timbered, it is very expensive to clear; the soil, however, is very good. The soil is well adapted for all farming purposes, and splendid crops of cereals can be grown after the land has been properly cleared.

Buildings.—The buildings consists of main building, 38 x 43 feet, three stories high; the old school-building is used for a laundry, bake-shop, carpenter-shop and shoe-shop. Other buildings are school-room, wood-shed, driving-shed, and root-house. All buildings are kept in good repair. During the year extensive improvements have been made to the school. Formerly a small portion had been excavated under the main building for furnace, store-room, and drying-room; during the year the rest of the earth under the main building was taken out and all foundations changed. Our basement is now the size of the building and is floored with one and a half inch plank. This improvement we use for more drying-room space and leaves a very large room for boys to play in during the winter months. A staircase, 10 x 20 feet, was built on the north end of the main building, so that boys would have a separate entrance into the school. Heretofore boys and girls made use of the same staircase to go to their dormitories. By the addition of the staircase, this is avoided, and complete separation

is arranged for. The staircase makes connection with the boys' room in the basement, the dining-room and boys' dormitories.

A new building has been erected, size 32 x 46 feet, which provides accommodation for principal, hospital, Indian room, sewing-room or dormitory; also accommodation for staff. The ground floor has four rooms for principal, 13 x 15 feet each, comprising dining-room, sitting-room, bed-room, kitchen, and bath-room, 5 x 8 feet. The hospital consists of two rooms, 11 x 14 feet, and 10 x 14 feet respectively, the Indian room is 10 x 14 feet; a 4-foot passage divides the principal's quarters from the rest. The second flat consists of spare bed-room, 13 x 14 feet; girls' bed-room, 11 feet square; staff bed-room, 11 feet 5 ins. by 12 feet 7 ins.; boys' store-room, 10 x 12 feet, and large room 18 x 27 feet, suitable for sewing-room or dormitory.

This building, erected at a cost of $1,625, by the W.F.M.S. of the Presbyterian Church, increases our accommodation for children; the dormitory formerly occupied by the principal being now free for service.

Accommodation.—There is accommodation for sixty children and a staff of seven. For lack of proper accommodation no effort was made during the past year to recruit more pupils; several applications being refused for that reason.

Attendance.—There are forty-eight children on the roll, twenty-seven boys and twenty-one girls. Four girls and one boy were admitted during the year. One boy was discharged and one girl died of consumption.

Class-room Work.—The programme of studies authorized by the department is followed. Good progress has been made in the class-room, special attention being given to reading, writing, memorizing and the use of English. The following is the standing in classes at the close of the year :—

		Pupils.
Standard	I	7
"	II	12
"	III	12
"	IV	6
"	V	11

Farm and Garden.—The stock consists of two horses and three head of cattle. Several of the boys have learned to milk, and they all in turn take care of both cows and horses. Some of the larger boys are good teamsters, having hauled all the lumber, sand, and lime for the new building. They do all ploughing, harrowing, and work necessary for putting in our crop, and all teaming for the school. Our large garden yielded abundantly last fall, and we had nearly enough potatoes to supply the needs of our school. There are about two hundred and fifty fruit-trees in our orchard, comprising apples, pears, peaches, cherries and plums, besides abundance of small fruits.

Industries Taught.—In the care of stock, farming and gardening, the boys receive a thorough training; it is good healthy work and they enjoy it. In carpentering the boys have made splendid progress. When putting up the new building the boys did most of the sheeting and rustic work, all the shingling and most of the lathing. They laid nearly all the floors and put on the wainscotting. Some of them deserve special mention for the ability they showed in their work, and for the alacrity with which they learned to handle the tools. Their instructor spoke highly of their ability and was much impressed by their desire to excel.

In painting, some of the larger boys are quite proficient; they have done nearly all the painting required during the year. The painting carried on now, is under a careful instructor.

Shoe-repairing is also carried on, the children's shoes are repaired and half-soled, and a little repairing has also been done for white people residing near here.

Several of our boys are good bakers; two boys are appointed each month. With the exception of what the girls bake, they are responsible for the bread during the

month. The girls bake small bakings in the kitchen. In laundry work, the boys assist the girls in the washing. The girls are responsible, however, for the work in all its detail, and they carry it out with much credit to themselves.

In the carrying on of the work of the school from day to day, the girls receive a thorough training in all that pertains to the keeping of a home. They are taught bread-making, the care of milk and butter, the canning of fruit; also cooking, sewing and music. In all their work the pupils are faithful and attentive, and any work allotted to them is carried out promptly and cheerfully.

Moral and Religious Training.—It is our humble endeavour in the training of the children who come under our care, to so fit them that they may be prepared to fight life's battles when they leave the guardianship of the school. That our efforts in the past have met with success is proven by the lives of the ex-pupils who have been under tuition here.

At all times in private and in public the pupils are so taught that they may be built up in the truth. The children attend regular Sabbath services, also Sabbath school and every day religious instruction is imparted to them. Three pupils under ten have memorised one hundred verses of Scripture and received certificates ; five have memorized the Shorter Catechism, eight others have memorized two hundred verses of Scripture. The two last mentioned have received diplomas from the General Assembly of our Church.

The hope of the race depends a great deal on the giving up of their customs, such as the wolf-dance and potlatch, as both tend to barbarism and penury. It is therefore apparent that as soon as the people become Christian so soon will they give up those customs. The hardest battle fought by our ex-pupils is the persistent endeavour of the older people to make them take part in those dances, so that the dances may be continued in the future.

The proximity of the school to the reserve has an elevating effect on the parents of the children as shown by the higher tone of living, and cleanliness in their homes.

The conduct of the pupils is all that could be desired.

Health and Sanitation.—The health of the school has been fair throughout the year. There were two cases of serious illness. One pupil died of consumption, the other pupil was very slow in recovering; he is now well and strong.

The sanitary condition of the school is good.

Water Supply.—The water that is used by the school is pumped from the river by a windmill; it has not been satisfactory at all this season and we have experienced considerable difficulty in securing a fair supply. Our well, also, partly owing to the dryness of the season, has not kept us properly supplied with drinking water.

Fire Protection.—Four Carr and four Star fire-extinguishers are distributed through the building. Fourteen fire-buckets are kept full in convenient places. There is also 150 feet of rubber hose. We have a tank holding 500 gallons outside and another holding 400 gallons in the new building. They would be of great service if we had a reliable water-supply.

Recreation.—The boys take great interest in football, baseball and basketball; their efforts to excel in all kinds of manly sports are encouraged as much as possible. In their games of football with white people they are generally successful. The pupils are fond of outdoor games of all kinds; they are very fond of swimming and canoeing. In the winter, indoor games are provided.

General Remarks.—Two of our ex-pupils I might mention, viz.:—Harry Thomas and Charles Ross. Harry Thomas has been in constant employment since last December as carpenter. He now receives $2.50 per day. C. Ross worked on our new building as bricklayer and plasterer and he is now able to build chimneys and does good work plastering. The great difficulty is to find constant employment for our ex-pupils, they are willing to work, but it is necessary at times to go far afield for it, making it hard to save any money.

One of our ex-pupils, Lizzie Tatooch, has been in continuous domestic service for nearly five years, giving entire satisfaction to her employers. Another girl has spent over two years in domestic service; while two others have spent shorter periods at similar work.

In closing, I would acknowledge the kindly interest of Agent Neill, in his monthly visits to the school.

I have, &c.,

JAS. R. MOTION,
Principal.

BRITISH COLUMBIA,
ALERT BAY GIRLS' HOME,
ALERT BAY, July 23, 1904.

The Honourable,
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report of the Alert Bay Girls' Home for the year ended June 30, 1904.

Location.—The home is situated on land belonging to the Church Missionary Society. A quarter of an acre is fenced for a vegetable garden at the side of the home, and a flower garden facing seaward gives it a pleasant and homelike appearance.

Buildings.—The building is of wood, 34 x 32 feet, and comprises dining-room, play-room, kitchen, laundry and matron's sitting-room downstairs, with suitable bedroom upstairs.

Accommodation.—The building is capable of accommodating fifteen girls and two officers of a staff.

Attendance.—The average attendance during the year was six girls.

Class-room Work.—The pupils were admirably taught by Mrs. Hall at the village school. The progress in all subjects was excellent. The schedule prescribed by the department is followed.

Moral and Religious Instruction.—Bible lessons with prayers are given daily and the girls' morals are zealously guarded by the matron.

Health and Sanitation.—The health of all the girls was very good.

The sanitary arrangements of the home are satisfactory.

Water Supply.—There is a good supply of water obtained from a spring at the back of the home.

Fire Protection.—Two 'Star' fire-extinguishers, one axe, and six fire-buckets, all supplied by the department, are always kept ready for use. A large tank is kept full of water. The fire-brigade is close to the home.

Heating and Lighting.—The heating is done by means of box-stoves, and the lighting by ordinary coal-oil lamps.

Industries Taught.—The industrial teaching consists of instruction in general housework, cooking and bread-making, knitting and fancy-work. Very good progress has been made by most of the pupils.

Recreation.—Regular hours are set apart each day for recreation. When fine, the girls take walks with the matron. Various indoor games are played. A play-room is well supplied with books and toys.

General Remarks.—The Bishop of Columbia visited the home and was pleased with all he saw.

I have, &c.,

A. W. CORKER,
Principal.

BRITISH COLUMBIA,
PORT SIMPSON BOYS' BOARDING SCHOOL,
PORT SIMPSON, August 2, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to forward my annual report on the Port Simpson Boys' Home for the year ended June 30, 1904.

Location.—The Port Simpson boys' boarding school is located three hundred and fifty yards from the ocean front and situated on the Tsimpshean reserve.

Land.—The plot of ground on which the school is built, is 12 x 15 rods. It belongs to the mission property.

A ravine running through the plot makes the land well adapted for a kitchen garden. Corn, pumpkins, cucumbers cannot be grown ; but beets, carrots, turnips and cabbages grow easily and to a great size. Beries, currants and other small fruits grow in abundance and with little cultivation.

Buildings.—The main building is the dwelling which is occupied by the principal, matron, school teacher, and twenty-one boys. There is also a wood-shed, a small shed for coal, a hen-house, and a cow and horse stable, large enough for three cows, one horse and about two tons of hay.

Another building opens to the north and west, giving a beautiful view of the ocean, and overlooking the village is a two-story building, the lower floor of which is used as a play-room for the boys in rainy weather; the upper floor being used as a lumber-room.

Accommodation.—Comfortable accommodation can be provided for the principal, matron, teacher, and twenty-five boys.

Attendance.—The attendance has been excellent ; no absentees except in case of sickness.

Class-room Work.—The class-room work has been faithfully attended to with good results.

Farm and Garden.—Our garden is a success as a means of employing the boys and as a home commodity. More land could be cultivated and would be of much help to the institution.

Industries Taught.—We have no regular trades instructor, but the boys are trained in general housework, gardening, shoemaking, and carpentry.

Moral and Religious Training.—Moral and religious instruction is given daily with good practical results.

Health and Sanitation.—There is no disease at the school. No deaths have occurred during the year and there has been but little sickness.

Water Supply.—The water is partly supplied by rain-water from the roof of the building and partly from the hillside, by means of a flume which is continually running.

Fire Protection.—The only fire-appliances on hand consist of a tank, several water-barrels, axes, buckets, ladders, &c.

Heating and Lighting.— The heating is done with coal or wood, used in the ordinary stoves.

The only lighting system in use is coal-oil lamps.

Recreation.—Our recreation-grounds are small, but they afford a great deal of health-producing pleasure. On account of this small space, we find it necessary to allow the boys a run on the beach or an outing in a row-boat, each of which is heartily enjoyed.

CHAS. M. RICHARDS.
Principal.

BRITISH COLUMBIA,
PORT SIMPSON (CROSBY) GIRLS' HOME,
PORT SIMPSON, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report of the Port Simpson (Crosby) girls' home for the year ended June 30, 1904.

Location.—The school is located at Port Simpson, and is situated just outside the limits of the Tsimpshean reserve.

Land.—The land lies in section 4, township 1, range 5, Coast district. It is owned by the Woman's Missionary Society of the Methodist Church of Canada, and was acquired by purchase from Mr. Gordon Lockerby, of Port Simpson. There is an area of two acres, which is well fenced, but for the most part in a rough condition.

The land lies on the slope of a hill, the greatest elevation being toward the south and east. The character of this soil is swampy and requires thorough draining to fit it for cultivation or use in any way.

Buildings.—The buildings consist of a house three stories and a basement; a chicken-house, drying-shed, water-closets and tank.

We have new floors in the school-room and kitchen and are painting the woodwork of several rooms.

Accommodation.—As we have furnished another small dormitory, we have good accommodation for forty-five pupils and four teachers.

Attendance.—The average attendance is 43·22. The total enrolment is forty-seven, and the present number in attendance is forty-five.

Class-room Work.—In the class-room good steady progress has been made. The pupils speak English fluently and those who have been admitted during the year are making good progress in English.

The subjects taught are reading, writing, arithmetic, spelling, dictation, grammar, geography, history, hygiene, music, Bible history and doctrine and the Methodist Catechism.

Three were promoted to standard V; five to standard IV, and eight to standard II. Some of the girls are now capable of acting as organist for our school and Sunday school.

Garden.—A few flowers, berry and currant bushes are cultivated, but owing to unfavourable conditions of soil little can be accomplished in this line.

Industries Taught.—The industrial teaching consists of instruction in general housework, laundry work, cooking and bread-making, sewing, mending, knitting, darning and fancy-work. Careful instruction is also given in dressmaking. Some of the older girls have taken a special course in cooking during the year. Careful instruction has been given in all the industrial departments. Under the supervision of teachers, the pupils perform satisfactorily all the work of the institution. The pupils who were out at service gave excellent satisfaction as general servants.

Moral and Religious Training.—The pupils are carefully trained to be honest, truthful, obedient, industrious, kind and obliging. A Bible lesson is taught each day and religious instruction is carefully given.

Health and Sanitation.—The sanitary condition is good and the drainage excellent. The general health has been good throughout the year.

One death occurred during the year from consumption. With two or three exceptions, the rest have had good health throughout the year. All are well at present.

Water Supply.—The water-supply is derived principally from a mountain stream at some distance from the house and the water is conducted by a flume to a large tank holding 4,000 gallons. The rain-water from the roof also flows into the tank. The water passes through a filter before entering the tank and is distributed through the house by means of pipes. We have hot and cold water on two flats. Our water supply is excellent and abundant.

Fire Protection.—We have fire-escapes furnishing means of exit from the two upper flats and from all the dormitories. Besides these fire-escapes, which we have tested and proved satisfactory, there are two stationary ladders on the roof, and two ladders from the ground to the roof. We have also light movable ladders.

Buckets of water and of ashes are kept always in readiness on each flat and eighteen water pails are available in case of fire. We have two chemical fire-engines and one fireman's axe. We have also an unfailing and abundant water-supply. Mention may also be made of the village fire-brigade within call at short notice.

Heating and Lighting.—The heating of the home is accomplished by means of six stoves, one first-class French range, one open grate and one coal-oil stove. We use soft coal and some wood. Coal-oil lamps are used for lighting; bracket and hanging lamps being used exclusively in the pupils' apartments.

Recreation.—Regular hours are set apart for recreation each day. This recreation consists of games, physical culture, such as club-swinging and drill, walking, playing on the beach and general play. Exercise in the open air is encouraged, and enforced if necessary.

General Remarks.—This year we have had the highest average attendance in the history of the institution. One girl was discharged last fall to be married, and one died in February. We have admitted five during the year and two out-pupils have returned to the home. The girl who was married made herself a complete suit, dress and underclothing very neatly. She is a good cook and breadmaker and keeps herself and her home clean and tidy. She is a sensible, intelligent young woman and a credit to the school.

Another pupil who was discharged two years ago was married this winter, and when we called there, her house was very clean and neat.

The pupils have been trusted in many ways, more than ever before, and with some exceptions have proved themselves worthy of the trust reposed in them.

Premier McBride and other members of the British Columbia cabinet visited us in August and expressed themselves as much pleased with what they saw in the institution. Lord Dundonald and Colonel Holmes also called when they were here last December and looked over the home. At Christmas a very good programme was prepared by the girls for their entertainment. The programme consisted of drills marches, motion songs, choruses, a quartette and a round. We had two entertainments, one for the white residents of Port Simpson, and one for the parents and friends of the girls. About two hundred Indians assembled. A candle drill, with two bed-time songs, by eight of our smallest girls, and a character song by a little girl of nine were much appreciated. Our girls had a very happy Christmas. The gifts of some friends and of members of the staff made it possible for us to give all the little ones dolls and the larger pupils other gifts. Each girl received a book and nearly all have read their books. Even the smaller ones try to read their picture-books and one little girl of nine was able to read and understand Anderson's Fairy Tales.

Besides the usual work of the institution, which is not light by any means, the girls have painted the woodwork of eight rooms besides the halls, and are painting the floors of the halls. This year they raised about $40 from the sale of fancy-work and were able to buy new spreads for thirty beds. They do their work cheerfully and pleasantly and are trying to learn to do it well.

We are thankful for the progress we have made this year, and although we have had some things to discourage us, and some parents have not appreciated as they should

what was being done for their daughters, still we shall keep high ideals before the pupils and encourage them by every means to reach up to them.

I have, &c.,

HANNAH M. PAUL,
Principal.

BRITISH COLUMBIA,
ST. MARY'S MISSION BOARDING SCHOOL,
MISSION CITY, June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,,
Ottawa.

SIR,—I have the honour to submit the annual report in connection with this school for the fiscal year ended June 30, 1904.

Location.—The St. Mary's Mission boarding school has a beautiful location. It is situated on the north bank of the Fraser river in the vicinity of Mission Junction, about forty-three miles east of the city of Vancouver. Our buildings standing on a well laid out plateau, two hundred feet above the river, command a picturesque view of a large portion of the Fraser valley, making the site an ideal one for an industrial school

Land.—The land in connection with the school consists of about three hundred and sixty acres ; the property of the Oblates of Mary Immaculate. It lies in the Mission City district municipality, section 2, townships 3 and 4. The land, which is best adapted to fruit-culture, yields also good crops of hay and vegetables of all kinds.

Buildings.—The main buildings, 75 x 33 feet, includes a chapel, class-room, library, parlour, dormitory, bath-rooms, toilet-rooms, principal's and teachers' rooms. An addition of 50 x 35 feet, has been made to the main building ; the government being kind enough to grant $2,300 ; the actual cost being $3,600. The deficit was made up by the mission's funds. This new building comprises two refectories, kitchen, pantry, teachers' private work-room, private and public infirmary, bath-rooms, closet, a cellar six feet high and a large room that can be used as a dormitory. Another building, 45 x 24 feet, attached to the main one, contains two class-rooms, parlour, band-room, shoemaker and carpenter-shops and two bed-rooms. The girls' house consists of a main building, 75 x 33 feet, with a wing, 45 x 24 feet, and includes a chapel, class-rooms, parlour, sewing-rooms, recreation-room, dormitory, bath-rooms, toilet-rooms, refectory and kitchen. The outer buildings comprise a play-house, laundry, storehouse, wood-shed, stables and barns.

Accommodation.—The new addition to the building adds greatly to the accommodation of the house. A teaching staff of five, including the principal, and about ninety pupils can be provided for.

Attendance.—There has been an average attendance of eighty-four pupils: thirty-nine boys and from forty-five to forty-eight girls.

Class-room Work.—During the past year the teaching staff has been slightly changed. The general supervisor, at work and recreation, for the boys is the Rev. Brother Collins. Three of the rev. sisters of St. Ann preside in the different classes.

The programme for the past year has been carried on in a most satisfactory manner to the teachers and most creditable to the pupils. The examinations were presided over by Superintendent Vowell, Agent McDonald, and several of the rev. fathers. The superintendent and agent both expressed their delight and pleasure at not only the improvement made in the studies, but at the general appearance and cleanliness of the pupils.

Farm and Garden.—A large portion of the farm is kept under hay. There are about twenty-three acres cultivated for the production of grain, chiefly oats; and from six to seven acres for the raising of all kinds of vegetables. Gardening has been successful. Our garden is an object lesson to the pupils and the people in the vicinity, of what can be done in that line. It is stocked with flowers and fruit-growing shrubs. Our extensive orchard supplies us with apples, pears, plums and cherries.

Industries Taught.—The art of farming and gardening has been very successfully taught by skilful instructors, and figures in on small degree in the livelihood of the boys after they leave school.

The manual work in this line, comprises the care of cattle and live stock in general. Dairy work is also taught. During the harvest season the pupils give assistance to our employees. Shoemaking and carpentering are taught to those who show an aptitude for the trades.

The girls are instructed by the rev. sisters in the culinary department, dressmaking, knitting, and general housework. Hand and machine sewing, plain and fancy needlework, receive special attention and are greatly admired by visitors.

Moral and Religious Training.—The rev. principal is in person charged with the religious training of the pupils. A certain time is daily allotted for this object. They have morning and evening prayers. Prompt attention at the various religious exercises is enforced. They are taught to chant hymns, &c., used in Roman Catholic worship; they also render assistance to the choir at Sunday service in the parish church.

Health and Sanitation.—The health of the pupils is excellent. There is nothing lacking in the attention paid to the sanitary condition of our institute. The house has a well-supplied pharmacy, and as soon as any sickness manifests itself, medical aid is called.

Water Supply.—The water is supplied from a mountain stream which flows through the property and is conveyed in pipes through the entire buildings.

Fire Protection.—There are eight fire-extinguishers, four fireman's axes and forty-eight pails constantly in readiness. The larger boys are taught the use of these appliances, whilst the younger ones are exercised in, and instructed how, in case of fire, to seek safety.

Heating and Light.—The buildings are heated with stoves and lighted with coal oil lamps.

Recreation.—Outdoor exercises are heartily encouraged. The boys are passionately fond of the different sports, such as football, baseball, lacrosse, hand-ball, &c. The recreation grounds are well kept. During the long winter months the pupils in the recreation-rooms spend the time in reading, playing chess, checkers, dominoes, &c.

General Remarks.—During the year several concerts were given to the white population. They have also entertained their friends and parents at the Indian gatherings which take place St. Mary's Mission yearly.

I take great pleasure in bearing testimony to the zeal and earnestness of our teaching staff and thank them for the good results they have achieved.

I also take great pleasure in thanking our agent for his frequent and kindly visits, and the good advice given to the pupils; it is heartily appreciated and results in the good of the work.

I have, &c.,

CH. MARCHAL,

Acting Principal.

BRITISH COLUMBIA,
SQUAMISH BOARDING SCHOOL,
NORTH VANCOUVER, July 6, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I beg to submit my annual report for the year ended June 30, 1904.

Location.—The Squamish boarding school is pleasantly situated on the north shore of Burrard inlet, opposite the prosperous city of Vancouver, and at a distance of about four miles therefrom.

Land.—The area of land in connection with the school is about twenty-one acres and is the property of the Sisters of the Holy Infant Jesus, in charge of the school; about one-third of this land is cleared and under cultivation. It is divided into vegetable gardens, orchards and flower-beds.

Buildings.—The completed building is commodious and comfortable. The lower floor contains: entrance-hall, two reception-rooms, a large school-room and a work-room; on the second floor are the chapel and rooms for the different members of the staff; the upper story comprises a large dormitory for the girls; on each floor are bath and toilet rooms. The old building consists of a kitchen, small store-room, a large school-room, two dining-rooms; all of these are on the ground floor; on the second story are two dormitories, the principal's room, the boys' infirmary and some bed-rooms for the teachers.

The outbuildings consist of wood-shed, laundry, storehouses, barn and hen-house.

Farming and Gardening.—The children weed the garden and help in whatever they can do on the farm. Besides this, the boys saw and chop in the yard all the wood required for fuel.

Girls' Industrial Work.—The girls are trained in all the branches of domestic work; baking, cooking, laundrying, sewing, knitting, darning, dressmaking, &c.; they have also done a great deal of fancy-work, for which they show great skill and aptitude.

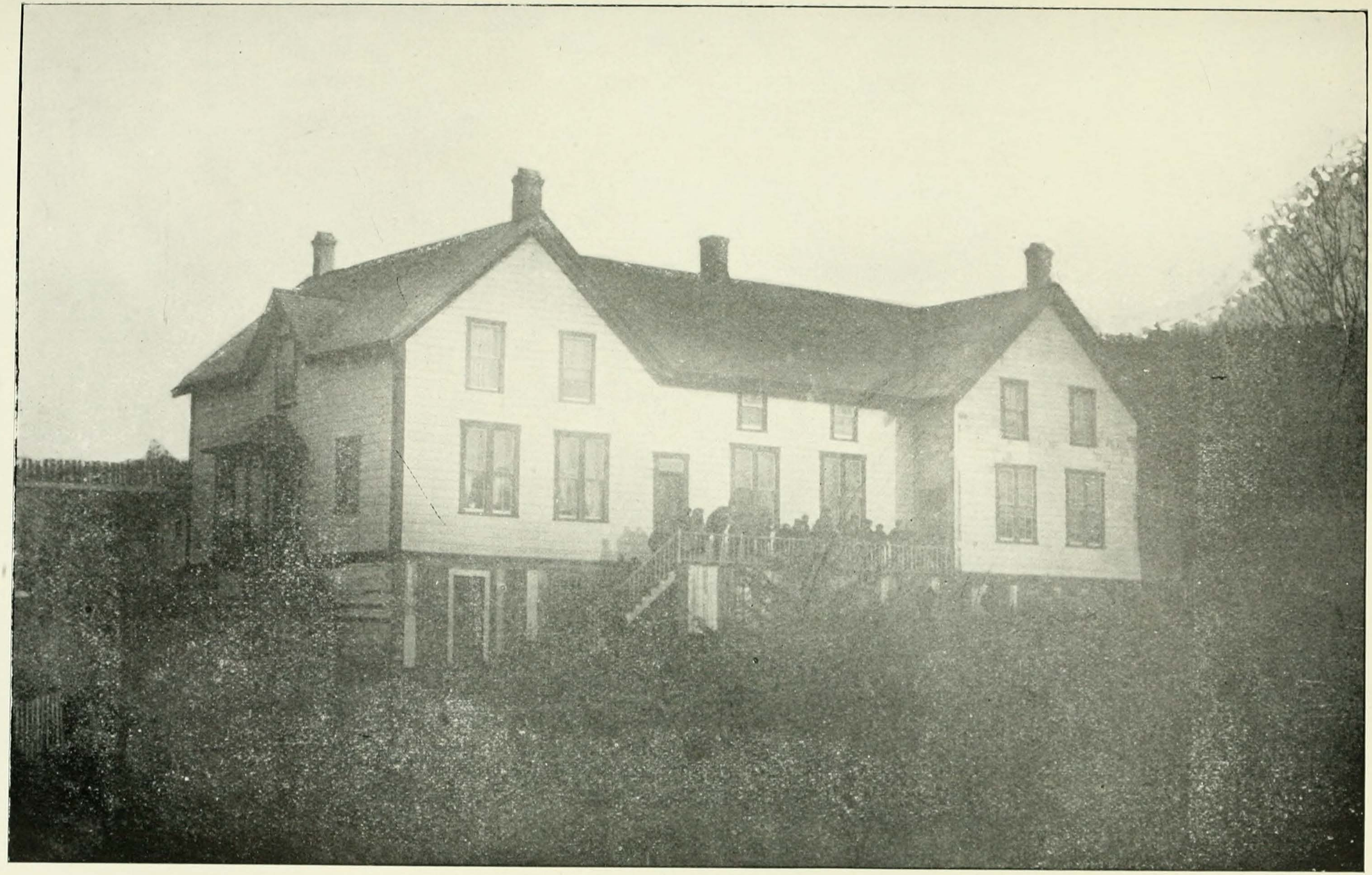
Attendance.—The attendance for the year has been good, and averaged twenty-five boys and thirty-three girls.

Class-room Work.—The work done in the class-room has been exceedingly satisfactory; the pupils have, one and all, shown a disposition to learn, and have made excellent progress. At the end of the term, the pupils were graded as follows :—

	Pupils.
Standard I	25
" II	15
" III	6
" IV	3
" V	7
" VI	2
	58

Moral and Religious Training.—Religious instruction is given half an hour each day and the strictest attention is paid to the morality of the pupils; their conduct has been most satisfactory during the whole course of the year.

Health and Sanitation.—The health of the pupils has been fairly good. However, I regret to say that several of the pupils sent home on account of ill health, died,



Boys' Boarding School, Port Simpson, B.C.

mostly from tuberculosis in one form or another. The sanitary condition and drainage is good.

Water Supply.—Our water-supply is obtained from a creek, a short distance from the school.

Fire Protection.—Two Stempel fire-extinguishers, eight glass-lined chemical extinguishers, two dozen buckets, two hundred feet of hose, two axes and two ladders, are kept in readiness for use.

Heating and Lighting.—The heating is done by means of wood-stoves; for lighting, we use coal-oil.

Recreation.—All sorts of outside games are heartily encouraged, the boys delight in baseball, football, tennis, canoeing and boating; the girls are fond of reading and drawing.

General Remarks.—Numerous visitors have inspected the institution, and it has been gratifying to note their pleasure at the bearing and behaviour of the children.

I have great pleasure in acknowledging here the faithful work done by the staff, generally, in the school. Without their co-operation the work would suffer, and I, therefore, feel it due to them to mention their continued willingness and cheerful alacrity and proficiency in their own departments.

In concluding my report, I beg to tender my most sincere thanks to our good agent, Mr. McDonald, for his unvarying kindness, and his earnest co-operation in all matters connected with the interests of the school. I must also say that the pupils were especially delighted with a visit from A. W. Vowel, Esq., Indian superintendent; and his words of counsel to them, will, I trust, not soon be forgotten.

I have, &c.,

SISTER MARY AMY,
Principal.

PROVINCE OF BRITISH COLUMBIA,
ALL HALLOWS BOARDING SCHOOL,
YALE, July 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the annual report for the All Hallows boarding school for Indian girls, under the management of the sisters belonging to the Church of England Community of All Hallows.

Location.—The school is situated about a quarter of a mile from the Canadian Pacific Railway station of Yale. It stands on the right bank of the Fraser river, at the foot of one of the Cascade mountains. It is not on a reserve.

Land.—The buildings stand in well-laid-out grounds of about seven acres in extent in the township of Yale. This land was bought by friends of the school, the government granting $500 towards the purchase. It is held in trust for the school. The property is bounded on one side by a deep ravine, through which rushes a rapid mountain torrent; in front, below a high bank, flows the Fraser river, only separated from the school land by the Canadian Pacific Railway line and the government road; at the rear of the buildings the mountains rise abruptly. Part of the land is well adapted for fruit-growing, about half an acre of orchard bearing cherries, plums and small fruit abundantly.

Buildings.—These consist of a large school-house, containing dormitories, school-room and living-room, besides smaller bed-rooms, work-room, &c.; a school chapel, and a house for teachers and visitors. During the past year part of another building was adapted and fitted up as a small extra dormitory, allowing for an increase of four beds.

Accommodation.—The present addition enables us to accommodate thirty-eight pupils, while the staff can be increased to any desired extent.

Attendance.—All the pupils are boarders, and only a small number of them leave the school for holidays of three weeks' duration during the summer, with the sanction of the department.

Class-room Work.—The school-room is under the charge of a capable and fully qualified teacher, Miss Kelley, B.A., of Trinity University, Toronto, and an English teacher, who have brought the children on so well that they compare very favourably with white children of the same age; in fact, in several examinations where they have had the same papers given, the Indian girls have gained the higher marks of the two. A few of the older girls were sent in for the examination in drawing of the Royal Drawing Society of Great Britain and Ireland, lately held at All Hallows school. The results are not yet known. A sister takes classes for recitation and other subjects; the matron takes the younger children every day for needlework, and the vice-principal has charge of the religious training of the children.

Garden.—Half an acre of fruit-trees provides fresh fruit and abundance of jam for the school during the entire year. Vegetables are also grown, but the soil is too light to grow heavy root crops. Part of the grounds are laid out with lawns and flower beds.

Industries Taught.—Though not an industrial school, yet the girls are thoroughly instructed in all departments of domestic service, and the older ones in cooking, bread-making and laundry work. Needlework is also systematically taught throughout the school, the older girls have learnt to do simple dressmaking, while their 'samplers' of plain needlework have been much admired.

Moral and Religious Training.—Most careful attention is paid to this subject. The girls attend service morning and evening in the school chapel, and have frequent instruction in Holy Scripture and church doctrine. As regards moral training, every effort is made to strengthen each individual character, and to give them such a thorough and careful training while under our care that they may be good and useful women when they leave us to take their place in the world.

Health and Sanitation.—The health of the children has been excellent during the past year. We have had no epidemics, and not a single case of serious illness, while the healthy, robust appearance of the children has been most favourably commented upon by visitors to the school.

The drainage system is excellent, and the sanitary condition of the school very good.

Water Supply.—While there is an abundance of excellent water close at hand (the school owning fifteen inches of water from a mountain stream running beside the house) the cistern and pipes are inadequate to supply the increased number of buildings in which water is used.

Fire Protection.—In case of fire, the very low water pressure might be disastrous, though the girls are thoroughly trained to be prompt, efficient, and exceedingly resourceful on all occasions of emergency, and are well accustomed to putting out fires occasioned by passing trains during all the hot weather in summer. One axe and thirty zinc buckets provided by the department for this purpose, are always at hand in case of fire. Four 'Star' fire-extinguishers were also provided, but did not prove very satisfactory.

Heating and Lighting.—All the buildings are fitted with stoves burning coal or wood, the pipes passing through brick chimneys. They are lighted by means of oil lamps attached to the walls or ceilings, hand lamps being very rarely used.

Recreation.—An hour's walk with one of the staff is taken daily in suitable weather. The girls have a large playground with swing, summer-house, and a garden for each child, where they play or work in their spare time in summer. In winter, or in rainy weather, indoor games, fancy-work, or reading, of all of which they are very fond, are in vogue in their spacious play-room, or on a balcony or verandah.

I have, &c.,

AMY, SISTER SUPERIOR, C.A.H.,
Principal.

BRITISH COLUMBIA,
ALERT BAY INDUSTRIAL SCHOOL,
ALERT BAY, July 23, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to present my report of the Alert Bay industrial school for the year ended June 30, 1904.

Location.—The school is healthily situated on the Alert Bay industrial school reserve and is erected on the west end of Alert bay, and commands a pleasant view to sea. It is sheltered from northerly winds.

Land.—There are 410 acres of land connected with the school. The soil is mostly gravel and is thickly covered with bush. It is best adapted for pasture-land, although potatoes do well for one or two years.

It is cleared with difficulty.

Buildings.—The school-building is of wood, 60 x 40 feet, strongly and tastefully erected with plastered walls and light airy rooms.

Attached to the main building is a wing, 54 x 18 feet, comprising class-room and workshop. The outer buildings comprise : trades instructor's house, laundry, cow-shed, hen-house, root-house, cloak-room, tank-house and wood-shed.

Accommodation.—There is ample room for thirty-five boys and three officers.

Attendance.—The average attendance during the year was thirteen pupils.

Class-room Work.—The work done in the class-room during the whole year has been satisfactory and encouraging, good progress having been made without exception by all the pupils. The subjects of study were writing, spelling, composition, geography, grammar, dictation, hygiene, music and Bible history.

The first part of the year the boys were taught by E. L. Tait, who resigned on account of failing eyesight. Since his resignation the boys were taught by the principal and the Rev. A. J. Hall, B.D.

Industries Taught.—The pupils have helped in the general housework of the institution. Ten boys have had instruction in the carpenter's shop under Mr. R. Willard, and have made satisfactory progress. Lessons have also been given in sail-making and splicing rope and wire. A capstan and ways were erected under the trades instructor for the Indian agent.

Farm and Garden.—The flower garden has been tended by the boys. The vegetable garden has yielded enough fruit and vegetables for the school. A good crop of potatoes were raised.

The fresh piece of land fenced in by the boys last year, has been much improved, more stumps extracted and several good patches sown with potatoes.

Moral and Religious Training.—The pupils attend morning and evening prayers, a Bible lesson is given daily, and the pupils are taught their duty towards God and

man, the necessity of cleanliness, purity of mind and body, and these are enforced by continual supervision. The pupils attend divine service morning and evening on Sundays and Sunday school in the afternoon.

Health and Sanitation.—The health of the boys during the year has been excellent, without exception. The sanitary condition of the school is good, the drainage system being satisfactory.

Conduct.—The conduct of all the boys has been very good.

Water Supply.—The water is supplied from a well near-by. The pupils pump up the water into a large tank and from thence it is supplied throughout the school.

Fire Protection.—Four chemical fire-extinguishers, two fireman's axes, and twenty-four fire-buckets, all supplied by the department, are kept in places of convenient access. A fire-hose, one hundred feet long, is kept ready for use, and also three ladders made by the pupils.

Fire drill is practised in accordance with the instructions of the department. A fire-brigade, which is stationed on the premises of the saw-mill, is of easy access to the school.

Flues and chimneys are regularly swept and kept in good repair.

Heating and Lighting.—The heating is all done by means of ordinary box-stoves.

Hanging coal-oil lamps are used.

Recreation.—Football continues to be the favourite game of the boys, occasionally they play rounders.

They have sports—racing, jumping, boating and swimming.

Indoors they play ping-pong, in which several of them excel, chess, draughts halma and other such games.

Military and musical drill, dumb-bell exercises, and action songs have their place.

The band has greatly improved under the care of Percy Barton, an ex-pupil of the Metlakatla industrial school, who was sent here by Archdeacon Collison for further technical training. His bearing, education and manners are a great credit to Principal Scott.

General Remarks.—Mr. R. Willard was appointed trades instructor; he has taken a deep interest in his work, teaching the boys many little things which will be useful to them in this agency.

He hopes to be able to teach them boat-building next term.

During the last two months the trades instructor has been absent from the school rebuilding the saw-mill, with the help of seven of the ex-pupils of this institution. The new mill now takes the place of the old one which was erected some eighteen years ago, to which I understand the department gave a liberal grant. This enlarged industry will give, I hope, regular employment to many of the ex-pupils and other Indians wishing to benefit their condition.

The Bishop of Columbia visited the school in April; he was much pleased with the progress made in all subjects.

My thanks are given to Agent DeBeck for his visits to the institution and for his interest in the general work of the school.

I also thank the Rev. A. J. Hall for his help, given in the class-room.

I have, &c.,

A. W. CORKER,
Principal.

British Columbia,
Clayoquot (Bishop Christie) Industrial School,
Clayoquot Sound, Vancouver Island, July 6, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

Sir,—I have the honour to submit my annual report for the year ended June 30, 1904.

Location.—The Clayoquot (Bishop Christie) industrial school is situated on St. Mary's bay, a cozy cove of Clayoquot sound, on the west coast of Vancouver island. The location is ideal for a school, central on the coast, secluded from the nearest Indian reserve, Opitsat, and the Clayoquot trading post, and well sheltered from the cold winds. Mail is conveyed direct to the school from Victoria post office by private mail bag. The weekly coasting steamer passes the school on the up and down trip, and lies to, for delivering freight and mail.

Land.—The land attached to the school consists of 160 acres of unsurveyed Crown land, which has been pre-empted for the Roman Catholic diocese of Vancouver Island by the Rev. A. J. Brabant. It is covered partly with heavy timber partly with thick brush; elevated portions of it are rocky and low places are swampy. If cleared, thoroughly drained and sown with suitable grass, it will make good pasture. About two acres of the whole tract have been cleared by the boys and are used for gardens.

Buildings.—The main building, 40 x 60 feet, a substantial frame structure, well painted, is divided into two separate departments for boys and girls respectively. Entrance-hall, parlour, office, kitchen, pantry, sewing-room and two dining-rooms occupy the first floor. On the second floor are the chapel, two officers' bed-rooms, and two dormitories. In the attic are two more dormitories and two small bed-rooms. All the rooms are high, airy and well ventilated; the class-rooms are provided with large double windows which admit a flood of light. In the rear of the main building stands the laundry, 14 x 32 feet, and close by is the wood-shed, 36 x 50 feet, with carpenter-shop and shoe-shop under the same roof. At a safe distance is the storehouse, 12 x 18 feet. There is also a small barn on the premises.

At last, after years of patient and painstaking preparations, the hope of enjoying more commodious quarters is being realized, with the assistance of kind friends of the institution. Two additions to the main building, each 32 x 46 feet, with basement, are in course of construction and will be ready for occupancy in less than two months. These will provide hospital-rooms, bath-rooms, junior and senior class-rooms, cloak and linen-rooms, a gymnasium, a large hall and a spacious dining-room, lavatories and toilet-rooms.

Accommodation.—The school will have accommodation for seventy-five pupils and a staff of eight, after completion of the two additions.

Attendance.—Sixty-three pupils have been in attendance during the year; the average has been over fifty-eight (58·04); seven were admitted, two discharged, one died, and one is absent on sick leave. The present attendance is sixty; twenty-nine boys and thirty-one girls. The pupils had no holidays this year.

Class-room Work.—This has been carried on according to the programme of the department in the past year, with a success unequalled in former years. All pupils, each in his or her way, have made excellent progress in reading, composition, arithmetic, geography, music, but especially in writing, which elicits the admiration of

visitors. Violations of the rule, not to speak their native language, have been very rare and insignificant. Of painstaking application and lively interest in their studies, they seem never to grow weary.

Music is by no means neglected in our institution. Some of the children are gifted with extraordinary talent for music. Class-singing, a regular feature of the programme, proves a great delight and refinement to the pupils. The male quartette and the select quartette of mixed voices learned a number of new selections during the year. Five boys and four girls received lessons on the organ. One boy presides with grace at the organ in religious services. The band, which meets with rounds of applause when and wherever heard, has added not a few numbers of up-to-date music to its repertoire.

At the close of the year, the pupils were graded as follows :—

	Pupils.
Standard I	8
" II	8
" III	13
" IV	10
" V	16
" VI	6
	61

Farm and Garden.—This spring the boys cleared and spaded a new piece of ground about 130 x 60 feet, and seeded it in carrots, turnips, onions, beans and potatoes, but as the ground is new, the crop is not a success. Our old garden looks well. The strawberry patch yielded sufficient berries this year to allow the children to enjoy this luxury at table, a few times, for the first time in the history of the institution. Both senior and junior boys are instructed in grading. At date of writing the front lawn shines in all the glory of blushing roses, pure white lilies, and a variety of sweet-scented flowers, thanks to the untiring and well-directed efforts of the sister matron and her tiny helpers.

About an acre was slashed by the boys last summer with a view to turning it into a pasture. We have no pasture as yet, for our stock of two cows, one heifer and one bull. Outside of the little feed the stock can find in the bush and in inlets along the shore, they live on imported feed. By dint of effort, the boys harvested about one ton of hay, from the inlets and bays along the shore in the neighbourhood.

Industries Taught.—*Carpentering.*—Four boys worked at the carpenters' trade ; they built a boat-house, enlarged the barn, laid a new track of wood rails ninety yards long from the beach to the storehouse, prepared the foundation and braces for the tank of the new water service, put up board fences around the gardens and playgrounds, made hose-reels, school-desks, tables, benches, stools, shelves, two lace machines, a cupboard for the band instruments, and besides, attended to all necessary repairs. Eight boys are working at present with the carpenters on the new buildings.

Shoemaking.—Three boys worked in the shoe-shop repairing shoes, without a qualified instructor, one of the boys acting as instructor.

Painting.—Four of the boys painted the storehouse, and gave the canoes and the boats new coats of paint.

Baking.—Eight boys and six girls were instructed in the making of good home-made bread. Their bread is much admired by visitors.

Dairying.—Four boys were instructed in milking, butter-making, and in the feeding and care of stock.

Net-making.—Work and instruction in this industry during the year, was confined to repairing the nets made during the previous year.

Laundrying.—The boys are taught to wash their own clothing ; the girls, however, receive special instruction in all the details of laundrying. This work is done

without the use of machinery, as far as practicable, in order to train the pupils in accordance with their home conditions after leaving school.

Fishing.—Fishing being the principal source of livelihood of our great West Coast Indians, the senior boys are encouraged to go fishing and are shown improved methods in the use of net and line. They kept the house liberally supplied with salmon, halibut, cod, perch and herring ; trolling the last season over a thousand salmon.

Plumbing.—Four boys received practical instruction in this trade, when the pipes were laid for the new water service ; they assisted the plumbers and laid half of the pipe line alone, without assistance from the foreman, doing the work in such a creditable manner as to surprise him. These boys also set up a hot-water boiler in the kitchen and did all the piping and fitting without a foreman, under the directions of the principal.

Girls' Industrial Work.—The girls are taught by efficient instructors, housekeeping, hand and machine sewing, dressmaking, crocheting, knitting, mending and darning, embroidery, lace-making and tatting. They, in turn, attend to all the general housework, cooking, baking, butter-making, care of milk, and also have entire charge of the poultry. Eight girls have learned to do all the cooking required, without any assistance whatever from the sisters. The senior girls are taught also to make profitable use of, and to preserve and can, the many kinds of wild berries growing in abundance on this coast. The aim ever kept in mind, is to prepare each girl to become an all-round, practical housekeeper.

Many of the girls have attained great proficiency with the needle ; they cut and make all their own, and a large portion of the boys' clothing. Each girl learns to knit socks and stockings by hand, after this she is taught to use the knitting-machine, which turns out a pair of stockings complete in less than half an hour's time. After learning plain sewing and cutting and fitting, the girls, as a reward of proficiency in plain needlework, are taught to crochet lace, underskirts, vests, mits, and gloves, and finally to embroider. A lace-machine has been placed in the school and the girls learn lace-making with such facility that it bids fair to become a profitable industry for their future lives. The majority of the girls have done during the past year splendid work and a large amount of it, in crocheting, drawn-work, embroidery, and dressmaking, as the following partial list shows.

New garments : thirty-one shirts, thirty pairs of overalls, forty-two jumpers, twenty dresses, seventy-two aprons, forty chemises, thirty-five pairs of drawers, fifteen waists, thirty kitchen aprons. Hemmed: forty sheets, fifty pillow cases, thirty-six towels sixty napkins, twelve table cloths. Crocheted : four doilies, six table mats, thirty yards of lace, twenty-four underskirts, six silk neckties, two chorister surplices, two baby jackets, one shawl, one pair of slippers. Embroidered : one tray cloth, one doily, one pair of pillow shams. Other work: two floor rugs pieced, six pieces of drawn-work, twelve yards of Torchon lace, twenty-four pairs of stockings and socks, hand-knit by the little girls, twenty-eight ribbon ties, twelve napkins, hemstitched. In addition to this work, the girls attended to the mending and darning for all the pupils.

Six of the girls are proficient in dressmaking, cutting and fitting ; fourteen have learned crocheting ; three can make fine Battenberg and Torchon lace, and four embroider most skilfully.

Moral and Religious Training.—No other feature of education receives more conscientious attention than the moral and religious training of the pupils. The discipline is mild but firm. The conduct of the pupils is watched most carefully. Reposing confidence in them, yielded gratifying results. Each pupil is allowed all the latitude best adapted to an unforced development of self-consistent reliant character. Religious principles are made the basis and the rule of their conduct. No praise is too great for the obedience, the politeness, the amiability, the willingness, the cheerfulness, and the conduct in general of our pupils in the past year. Religious instruction is imparted daily.

Health and Sanitation.—One pupil who had been ailing for years, died during the year, of consumption ; another who was beginning to show symptoms of failing health was allowed out on sick leave for an indefinite time. All the other pupils enjoyed exceptionally good health this year. Outdoor exercise is strictly insisted upon, whenever the weather permits. The sewerage and ventilation are perfect. The sewer was extended into the creek which empties into the salt water.

Water Supply.—The institution is indebted to the department for the finest water service on the west coast. The water is obtained from a small, reliable creek, and conducted, by means of a flume, one hundred feet long, to an eight thousand gallon tank, whence it is brought by two-inch galvanized iron pipe for the distance of three thousand five hundred feet to the school. It is pure spring water.

Fire Protection.—Two Stempel and eight Star chemical extinguishers, twelve fire-pails, and two fire-axes, all supplied by the department, are kept in readiness in convenient places. Since the instalment of the excellent new water-works, the department supplied one hundred feet of two-inch, rubber-lined, web hose. At either end of the building is a stand pipe directly connected with the main. There is sufficient pressure to throw a half inch stream over the roofs of all the buildings on the premises. On each floor are taps for three-quarter inch hose. Fire-escapes run down either end of the building. Regular drills are held with extinguishers, fire-pails, hose and ladders.

Heating and Lighting.—All heating is done by means of wood stoves. The boys cut, housed and split, over forty cords of fire-wood last year. Coal-oil lamps are used for lighting.

Recreation.—For all kinds of outdoor exercise and games the sandy beach at low tide offers the pupils a unique playground. The boys delight in football, handball, jumping, vaulting, foot-racing, marbles, boating, canoeing, sailing. The girls have swings, skipping-ropes, croquet and ten-pins, and other outdoor pastimes. For the rainy season both boys and girls are provided with a liberal selection of favourite indoor games. Monthly entertainments were inaugurated during the year, also social gatherings were held in order to foster and promote a spirit of sociality among the pupils.

General Remarks.—It is highly gratifying to report that principal and teachers look back to a most successful year in every respect. Our pupils are a model band of children, devoted to their teachers and attached to the school, feeling at home in the institution as well as among themselves, and happy as children can be. They are to their instructors a source of both pleasure and encouragement. Though no holidays were granted this year, they are satisfied and have no complaints to make. The influence of the school through the pupils is becoming more and more apparent abroad, and since the institution by the wise policy of the department has been raised to an industrial school, it is in a better position to widen and extend its field of labour for the advancement of the West Coast Indian.

In conclusion I tender jointly with my assistants to the department the tribute of unbounded gratitude for the privilege of allowing this institution the grant of an industrial school. Mr. A. W. Vowell, the superintendent, and Mr. A. W. Neill, our new and efficient agent, by their kind and willing attention to the wants and interests of the school and for many valuable services, merit my warmest thanks.

I have, &c.,

P. MAURUS, O.S.B.,

Principal.

BRITISH COLUMBIA,
COQUALEETZA, INDUSTRIAL SCHOOL,
CHILLIWACK, SARDIS P.O., July 6, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to present my annual report for the year ended June 30, 1904.

Location.—This institute is situated on the south side of the Fraser river about four miles from the Chilliwack steamboat landing. Steamers ply daily (except Sunday) between Chilliwack and New Westminster. The institute may also be reached by the Canadian Pacific Railway, via Harrison station, where a small steamer connects with the south side of the Fraser, and thence by stage to Chilliwack. Coqualeetza institute is not situated on a reserve.

Land.—The Missionary Society of the Methodist Church holds the land (consisting of ninety acres) in fee simple, for which the institute pays $390 rental each year. The soil is exceedingly fertile. Large crops of hay and cereals, as well as roots and small fruit, are raised. Orchards also do well and a large quantity of fruit is exported to the Northwest. The land is described in the conveyances as part of lots 38 and 279, group 2, in the district of New Westminster. This is within the bounds of the Chilliwack municipality.

Buildings.—These are (1) the main building, containing kitchen, dining-rooms, dormitories, parlours, office, school-room, lavatories, laundry, recreation-rooms, clothes-rooms, furnace-rooms and dairy. (2) The primary school building, where also the band instruments are kept and band practices are held. (3) The residence of the farm instructor. (4) A long frame building, which includes shoe and carpenter-shops, wood-shed, a root-cellar, a flour-room and a drying-room. (5) Three large barns. (6) A granary. (7) A wagon and implement shed. (8) A bake-house. (9) A hen-house and pig-pen. (10) A water-tank. (11) A root-cellar. A small beginning has been made on a residence for the principal. An aseptic tank has been constructed for the disposal of sewage. Its dimensions are 10 ft. 3 in. by 6 ft. 4 in. by 5 ft.

Accommodation.—The building will accommodate one hundred pupils and a staff of eight teachers; there are also eight bed-rooms for the principal and his family.

Attendance.—One hundred and two pupils have been in attendance during the year, the average has been over eighty-one; twenty were admitted, ten were discharged. The present attendance is ninety-two, of whom sixty-two are boys and thirty are girls.

Class-room Work.—The hours of study and recreation in the school-room are from 9 a.m. to 12 noon, and from 1 to 4 p.m. The diligence and progress of the pupils has been highly satisfactory. Several pupils wrote on the examination for entrance to the provincial high school. The grading is as follows :—

	Pupils.
Standard I	22
" II	12
" III	17
" IV	24
" V	17
" VI	10
	102

Regular music lessons are given to several of the boys and girls.

Farm and Garden.—The crops for the past year were very satisfactory. There were four tons of pease, nineteen tons of oats, fifteen tons of carrots, thirty-two tons of potatoes, ninety-five tons of mangolds, two tons of onions, two tons of apples, and a ton and a half of plums and other small fruit. The dairy of twelve cows yielded good returns. There is now on hand a large number of hogs ready for the market.

Industries Taught.—We first aim to make our pupils expert in ordinary general work, and then instruct them along special lines. Especial attention is paid to farm work and particularly dairying, an industry which is growing to large proportions in British Columbia. Besides this, shoemaking and repairing is carried on. Carpentering and blacksmithing have also been added during the past year and good results are being obtained. The girls are trained in all departments of good housework.

Moral and Religious Training.—This most important branch of education is well looked after. The day is begun by prayers in the dormitories on rising; family prayer in the dining-room before breakfast and in the school-room in the evening, always associated with singing by the teachers and pupils, and either the reading of the Scriptures or the recitation of psalms or other suitable portions of Scripture by the whole school in concert; Sabbath school on the Lord's day in the forenoon; attendance at the Indian church in the neighbourhood in the afternoon; and preaching service in the institute in the evening. At this latter service a considerable number of the best singers of the school, together with the teachers, are formed into a choir, who practise hymns and prepare anthems for use in the public congregation, which is made up of members from the surrounding country who are pleased to worship with us in this service. On Monday evenings the children meet in classes for special personal instruction in the needs and nature of religious experience. On Tuesday evenings the regular weekly prayer-meetings are held. Care is taken that these services shall not be lengthy lest they should prove wearisome and so defeat the very purpose for which they are held. We are able to see in many ways the happy effect of moral and religious training on the character and lives of the boys and girls.

Health and Sanitation.—There has been very good health among the pupils during the year. There has been but one death, a case of tuberculosis. There was also a case of appendicitis. The boy was operated on by Dr. Drew, of New Westminster, and the operation was completely successful.

Water Supply.—The Lucucuck river flows through the farm, offering an abundant supply of good water for the stock and an inexhaustible supply for house use and for fire-protection.

Fire Protection.—This is afforded in the following conditions: a brick building; hot-air furnaces, with the main flues composed of brick; the furnaces in the basement and the heating stove in the laundry are on floors of cement; the baking is done in a detached bake-house. The means of extinguishing incipient fires consist of a good supply of water in the tanks, available by taps on the different floors; water kept in barrels and buckets in the halls; a well, furnished with force-pump and an attachable hose; a supply of water buckets kept at easily accessible points; Carr chemical engines supplied by the department, and a fire company, organized and drilled with a view to effectiveness in case of fire. The building is provided with fire-escapes from the dormitories; in the plan of the building exit is made easy by halls and means of transit from one portion of the building to another; we have also in use, four Paton fire-extinguishers, given by the department during the year. Besides these, there are fireman's axes, supplied by the department, placed in the care of the teachers at points where they might be of most need. Larger pupils are appointed to the care of the different dormitories, whose duty it is, to remove the smaller children from the building on the very first alarm of fire.

Heating and Lighting.—A plant has been installed by the Grant Acetylene Generator Company of St. Thomas, Ont., and is a very great improvement on the old style

of kerosene lighting. The building is heated by means of the Smead-Dowd system of hot-air furnaces ; we have two in use.

Recreation.—The children are better in every respect for a large amount of exercise. It is their growing time and their natures demand plenty of healthful recreation, which it is really a sin to deny. So plenty of opportunity is granted for it. Nor is it difficult to do so. Outdoor games which involve much vigorous exercise are greatly in favour. For the first part of the year football had first place among the boys. But lately they have taken to baseball, which they pursue with great zest. As a result of this exercise and also, no doubt, of the work they have to do, the pupils are in good health and spirits. The band, also, is a most agreeable and popular diversion. The boys are always ready for their practices and lessons and have obtained a good degree of skill along this line. The girls, too, have their modes of recreation, which, while not so energetic as those of the boys, are enjoyed every bit as much. The game of croquet on the lawn, in the cool of the evening, is very popular. Of course, they have other games as well. Indoor games are not popular with either the boys or girls; but outdoor sports are possible in this part of the province nearly all the year.

General Remarks.—A complication of stomach and liver illness by which I have been prostrated, and the weather having registered for weeks a higher degree of heat than has occurred for years, and all coming on just at the time when my reports for the year are to be made out, has unfortunately made it necessary for me to make my report an almost verbatim repetition of last year's one, with the exception of the changes mentioned herein. I may say that the conduct and the progress of the pupils during the past year have been highly satisfactory, and I trust there is a growing appreciation among the Indian population of the value and advantage of industrial school education.

I have, &c.,

JOSEPH HALL,
Principal.

BRITISH COLUMBIA,
KAMLOOPS INDUSTRIAL SCHOOL,
KAMLOOPS, July 12, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to forward my annual report for the year ended June 30, 1904.

Location.—The Kamloops industrial school is situated at the foot of St. Paul's mountain, on the northern bank of the South Thompson river. It is in the immediate vicinity of the Kamloops reserve, and about two miles from the town of Kamloops, which is a divisional point of the Canadian Pacific Railway. The background of bordering hills and the fine groves lining both banks of the river, make the position of the school very pleasant in the spring and summer.

Land.—The area of land belonging to the school, comprises 320 acres, surrendered by the Indians of the Kamloops reserve for the purposes of the industrial school. Of this land, about fifteen acres are under cultivation in fields, garden and orchard, the remainder consists of sandy hills and broken land, suitable only for grazing, and of low-lying land, which in the spring is transformed by the overflow of the river into a beautiful sheet of water. There is no natural grass to be cut for hay, nor is there any timber available for fuel.

Buildings.—The main building contains on the ground floor, the parlour, office, dining-room for the boys, kitchen and pantry, and the laundry with four bath-rooms and bake-oven. The second story contains the girls' class-room and the chapel. To the right, is the girls' house, containing sewing and recreation-room, dining-rooms for the sisters and girls, and dormitories. To the north, about one hundred feet from the main building, is the boys' home, which contains store-rooms, recreation-room, lavatory and dormitory. As the boys' dormitory was too small, a new class-room, 30 x 20 feet, has been built this year, and the former class-room is now used as a dormitory for the little boys.

The outbuildings consist of the carpenter and shoe-shops, two stables and barn, the cellar, hen-house, ice-house, three-room cottage for employees, girls' summer-house, windmill and tank-tower.

Some of the buildings were re-painted in the spring and the floor of the boys recreation-room has been renovated.

Accommodation.—The school can easily accommodate sixty pupils and seven officers.

Attendance.—At the end of the year, twenty-five boys and twenty-six girls were in attendance. Two boys died at home during the year, and two girls were allowed to go home, owing to disease. Three boys and five girls were regularly discharged ; four boys and four girls were admitted. The average attendance was about fifty-one.

Class-room Work.—The school hours for the boys were in the morning from a quarter to nine till twelve, every week-day, except Saturday; and in the afternoon of every week-day, from a quarter to five till a quarter past six. The examinations conducted by Agent Irwin, showed good and steady progress in the girls' department, but slower in the boys' department. The school hours for the girls were from two to five in the afternoon, with half an hour's study in the evening.

At the end of the year, the pupils were graded as follows :—

	Pupils.
Standard I	3
" II	6
" III	11
" IV	10
" V	12
" VI	9
	51

Farm and Garden.—We have about four acres of land, which is protected by a dyke against the periodical overflows of the Thompson river. Kamloops being situated in the dry belt of British Columbia, the work of irrigation takes up a great deal of time; it is done by means of a windmill, and of a horse-power and pump combined ; water is also obtained occasionally from the Indians' irrigation ditch. Our garden yielded good crops of potatoes, carrots, turnips and beans. The other crops were not as good.

Raspberries, currants and gooseberries were plentiful; the orchard yielded a good crop of apples, as usual, and for the first time, we had a good supply of plums and juicy pears.

There is some good land, belonging to the school, which heretofore could not be irrigated. An irrigation outfit, consisting of a four horse-power gasoline engine and a three-inch centrifugal pump, has been purchased this spring and it is hoped that in the future we shall be able to raise good crops.

All the boys work in the fields and garden; they milk the cows and attend to the stable work in turn, outside of the regular work hours.

Our stock consists of four horses, six cows and five calves.

Industries Taught.—*Carpentering.*—Thirteen boys received instruction in this trade from Mr. L. Viel, who is an excellent mechanic. They were employed in building a new school-room, 30 x 20 feet, and 12 feet high inside, nicely decorated; in making mouldings and carvings for furniture, in repairing furniture and renovating floors.

Shoemaking.—Six boys were employed in the shoe-shop; their work consisted in repairing shoes and harness.

Painting.—Some of the boys painted the new building, and also the outside walls of the old buildings.

Girls' Work.—The girls do the cooking, baking, washing and learn all the branches of housekeeping. They are taught hand and machine sewing, and the making of lace. They make all their dresses and underwear, and also shirts, drawers, and jackets for the boys. The girls are clean, tidy and industrious, and great credit is due to the Sisters of St. Ann, who have them in charge.

Moral and Religious Training.—Religious instruction is given daily for half an hour. We keep constantly before the mind of the pupils the object which the government has in view in carrying on the industrial schools, which is to civilize the Indians, and to make them good, useful and law-abiding members of society. A continuous supervision is exercised over them, and no infraction of the rules of morality and good manners is left without due correction. On the whole, the conduct of the pupils has been good during the year.

Health and Sanitation.—This year has been the worst, since the re-opening of this school, eleven years ago. Four pupils had to be sent home, owing to disease, and two of them died soon after their discharge ; one from heart disease, and the other from consumption. Sudden changes in the temperature were the cause of much sickness in the spring. At the end of the year, the health of the children was excellent.

The sanitary condition is good ; the sewerage drain is working well. The dormitories were too crowded, but since the building of a new class-room for the boys, ample room is provided for that purpose, as the former class-room has been converted into a dormitory.

Water Supply.—Good water is supplied to the house from the river. The pump is operated by a gasoline engine, and the water is kept in a tank placed near the kitchen. The tank is lined inside with galvanized iron and covered all around with sawdust; thus the water is kept fresh and pure from all pollution.

Fire Protection.—The fire-appliances on hand are as follows :—

1. Four chemical extinguishers and two fireman's axes.

2. Three strong ladders permanently attached to the principal buildings, and a few smaller ones kept in proximity to the buildings.

3. About two dozen fire-buckets.

4. Two tanks ; one of a capacity of eighteen hundred gallons, with three taps, and the other, of a capacity of about twelve hundred gallons, placed on a tower thirty feet high. There are one hundred feet of rubber hose, which can be attached to any of the three hydrants placed at convenient places, so that a stream of water may be directed to any part of the buildings. These tanks may be filled in less than an hour's time by means of a bull-dozer pump, which is operated with a three-horse power gasoline engine. A stove has been lately placed in the basement of the tower, and, it is hoped, will be the means of preventing the water from freezing in the winter.

Heating and Lighting.—Ordinary box stoves are used for the purpose of heating, and all the fire-wood has to be purchased and brought down from Shuswap, distant thirty miles from the school. Coal oil is the only means of lighting.

Recreation.—The pupils have half an hour of recreation in the morning, half an hour at noon, and in the evening from half past six till bed-time. On Sunday and holidays, they enjoy a quiet walk or a drive on the wagons. They indulge in the ordinary amusements suitable to their age and sex. Some of them are very fond of reading story-books, but all seem never to tire of listening to the gramophone.

General Remarks.—We had during the year the honour and pleasure of a visit from the Indian superintendent and the Right Reverend Bishop Bryant, of Mackenzie.

In closing this report, I wish to express again my high appreciation of the interest taken in our school by Superintendent Vowell, and to tender my sincere thanks to Mr. A. Irwin, our worthy agent, for his monthly visits and his kindness and promptness in attending to all matters connected with the school.

I have, &c.,

ALPH. M. CARION, O.M.I.,

Principal.

BRITISH COLUMBIA,
KOOTENAY INDUSTRIAL SCHOOL,
ST. EUGENE P.O., June 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report of the Kootenay industrial school, for the fiscal year ended June 30, 1904.

Location.—This institution is favoured with a delightful location in the Indian village of St. Eugene, which adjoins St. Mary's reserve. It is in close communication with the railway system, being about five miles distant from Cranbrook, the nearest station. The extent of the premises, the beautiful gardens and spacious playgrounds, offer favourable opportunities for healthful recreation and exercise. A splendid view of the surrounding mountains can be had from the buildings. The air is pure and bracing.

Land.—The area of land belonging to the school and immediately surrounding it, consists of twenty acres surrendered to the department by the Oblate Fathers, for school purposes. A part of this land is occupied by the buildings and playgrounds, the remainder is laid out in gardens and orchards. We have also rented one hundred and twenty acres, in order that the boys might receive a more thorough training in farming, as that is the occupation to which most of them turn. The soil is not very fertile, but with the proper amount of irrigation, excellent crops of hay, oats and vegetables are raised each year.

Buildings.—These consist of the main building, occupied mostly by the staff, and the boys' and the girls' homes. The boys' house has on the lower floor, school-room, play-room, dining-room, lavatory and wardrobes. The upper floor comprises two large dormitories and a bed-room. The bedsteads are all of iron, each is well and comfortably furnished. The girls' home to the right of the central building is divided into sewing and recreation-room, refectory, lavatory, wardrobes, dormitory and bed-room. During the past year, an addition was made to this house by building a school-room 25 x 30 feet. It is well lighted and ventilated and is found to be most comfortable in every respect. The upper story is used as a sleeping apartment for the little girls.

The outbuildings are : bakery, laundry, supply-store, foreman's house, shoe-shop and wood-shed, barn and stable. Since my last annual report, it has been found necessary to make many repairs, such as painting, re-flooring, and improving the means of ventilation. At present all the buildings are in good condition.

Accommodation.—The buildings afford ample accommodation for sixty children and the staff necessary to carry on the work.

Attendance.—The government grant is for fifty pupils, but this number has always been exceeded in our school. The attendance is very regular, all the children being boarders. During the past term the average on the roll was fifty-four.

Class-room Work.—This was carried on by three teachers in separate rooms. The school-hours for the boys were in the morning from 8 to 11.15, with an hour's study in the evening. The girls attend school in the afternoon from 1 to 4, and study from 6 to 7 every evening. The work done in the class-rooms was both satisfactory and encouraging. With few exceptions, the pupils showed a great desire to learn and splendid progress was made. The official programme of studies is adhered to as closely as possible and examinations are made periodically. Regular lessons were given in singing, calisthenics and band music. The boys practised each afternoon from 1 to 2 o'clock.

At the close of the term the pupils were classified as follows :—

	Pupils.
Standard I	1
" II	5
" III	24
" IV	12
" V	6
" VI	2
	50

Farm and Garden.—Our farm is in a flourishing condition. The orchards, gardens and fields are neatly fenced with picket, board or log fences. Most of these have been put up by the boys under the supervision of the foreman. They evince a special aptitude for all farm work, and as it is the most useful industry for them, each boy is given a thorough and practical knowledge of farming in all its branches. All the boys work at gardening, the older ones doing the heavier work. We had an abundant supply of vegetables, comprising cabbage, turnips, carrots, parsnips, beets, onions, lettuce, celery, pease, beans, cucumbers, tomatoes, corn, rhubarb, citrons, pumpkins, &c. The hay, oats and potatoes did exceedingly well. Our orchard, containing about two hundred trees, which consist of apple, pear, plum, cherry and peach, is growing rapidly. As yet only the apple-trees are old enough to bear, but these yield a prolific supply. We have also an abundance of small fruits.

Industries Taught.—The boys are taught farming, gardening, care of stock, painting and the use of carpenter's tools. The building of the new school-room and the various other improvements gave the larger ones a good chance to acquire a general knowledge of carpentry. Those employed in the shoe-shop did the general repairing of shoes and harness.

Girls' Industrial Work.—The girls attain great proficiency in the use of the needle and sewing-machine. They are first taught plain sewing, darning and knitting, after which they are taught to cut, fit and make their own clothing. Three hours each day are very profitably devoted to this industry, and several dozens of dresses, aprons, skirts, shirts and numerous other articles of clothing are made yearly. Besides this, the girls mend their own and a part of the boys' clothing and knit many pairs of stockings. Under the direction of a sister, they attend to the general housework, each taking her turn at kitchen, laundry, bakery and dairy. Gardening is carried on by them, but on a small scale. A portion of the garden attached to their playground has been set apart for that purpose. They raise vegetables and small fruits and display considerable taste in arranging flower-beds and walks.

Moral and Religious Training.—This has always held the first place on our programme, and no pains are spared to instruct the pupils thoroughly in moral and religious subjects. This is done by the principal himself and by the teachers. Half an

hour each day is devoted to the explanation of Christian doctrine, and the children are continually under the supervision of one of the staff. The conduct of the pupils during the past term was all that could be desired.

Health and Sanitation.—The general health of the pupils has been decidedly good, however there have been some exceptions. About a year ago we were visited by an epidemic of pneumonia, which left some complications. One boy died in early spring of consumption, and several others suffered from minor complaints. The physician in charge visited these frequently and was successful in restoring them to health.

Water Supply.—An abundance of excellent water is obtained from St. Joseph's creek, a never-failing mountain stream. This is used for irrigation and is conveyed in trenches through the fields and gardens. For domestic purposes, water is obtained from two wells, one in the boys' and the other in the kitchen yard. Both of these failed last winter, and it was with difficulty that water could be had. Plans were laid to have water brought from the creek, but on account of the great expense this would entail, we have not yet been able to undertake the work.

Fire Protection.—Each department is supplied with two chemical fire-extinguishers, a fireman's axe, several buckets, a ladder and a hose. These are stationed at convenient places throughout the buildings and the pupils are exercised in their use.

Heating and Lighting.—All the heating is done by means of stoves. Wood is used exclusively for fuel. Light is supplied by means of coal-oil lamps.

Recreation.—A portion of each day is set apart for recreation. When the weather is favourable, the children enjoy outdoor exercise in their respective yards. The boys' principal games are football, baseball, and marbles. They are also very fond of huntins, fishing, swimming,and skating in season. Last fall the band boys had a pleasant outing at Fernie, where they were invited to give a concert. Their good performance and gentlemanly behaviour during their absence reflected much credit on the school. The girls amuse themselves at skipping, swinging, croquet and like games. The winter evenings are spent with music, singing, picture and story books, the gramophone, the magic lantern and numerous indoor games.

General Remarks.—In closing my report, I wish to express my high appreciation of the interest taken in our school by Mr. A. W. Vowell, superintendent, and to tender my sincere thanks to our agent, Mr. R. L. T. Galbraith, for his kindness and promptness in attending to all matters connected with the school.

I have, &c.,

N. COCCOLA,

Principal.

BRITISH COLUMBIA,

KUPER ISLAND INDUSTRIAL SCHOOL,

KUPER ISLAND P.O., August 24, 1904.

The Honourable

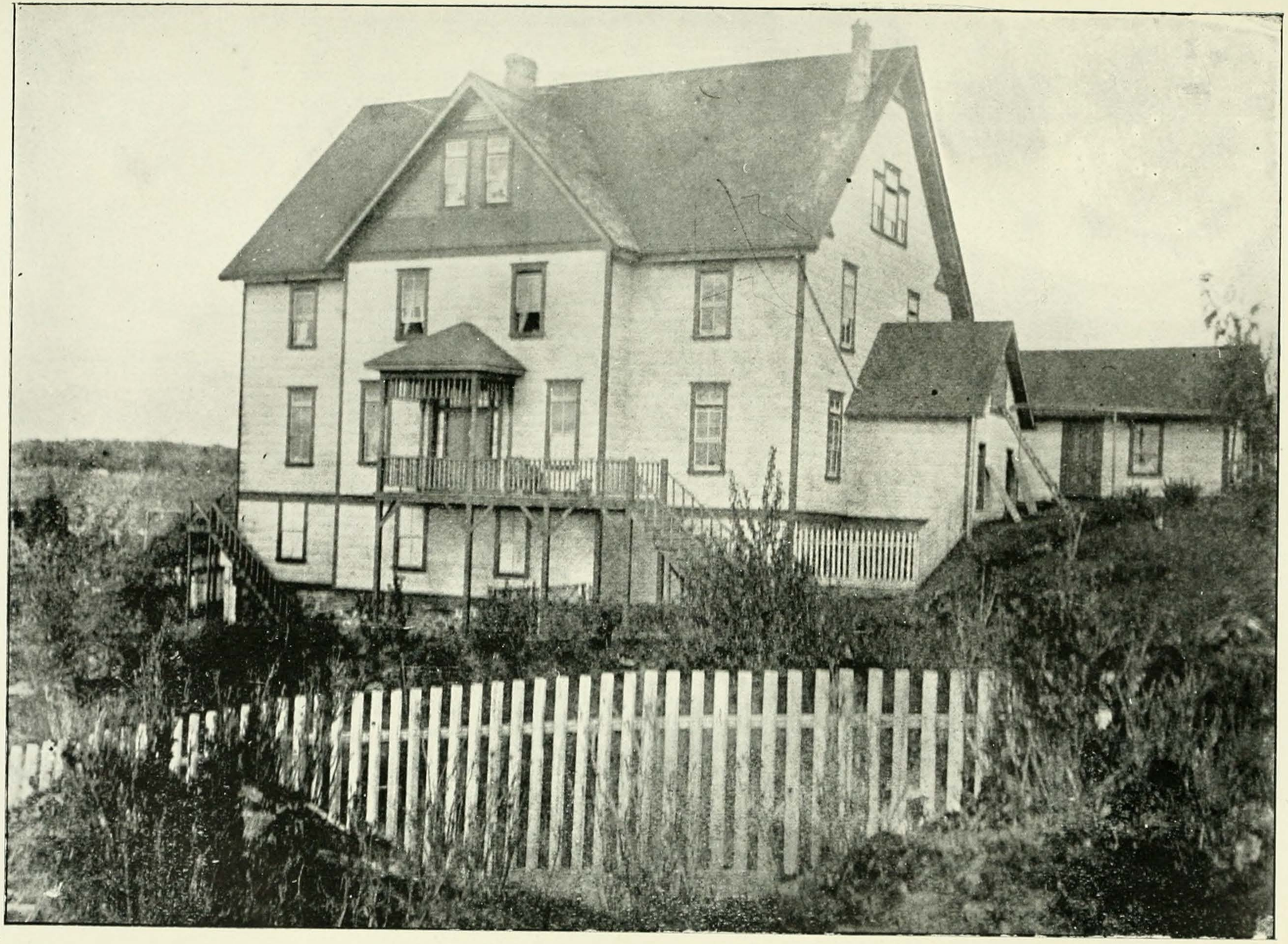
The Superintendent General of Indian Affairs,

Ottawa.

SIR,—I have the honour to submit my annual report for the year ended June 30, 1904.

Location.—This school is situated in a beautiful bay, on the southwest side of Kuper island, in Stuart channel, about five miles from Chemainus station on Vancouver island. The scenery of the surrounding country is magnificent.

Land.—The land in connection with the school was surrendered by the Pennelekut Indians and forms part of the Kuper Island reserve. There are about seventy acres, of which one-half is under cultivation; the other half is used for pasturage.



PORT SIMPSON GIRLS' HOME, B.C.

Buildings.—The main building contains on the ground floor, parlour, office, boys' dining-room, kitchen, pantry and girls' dining-room. On the second floor are the girls' school-room, the music-hall, the chapel, and two guests' rooms. The girls' home comprises on the lower floor : sewing-room, infirmary for girls, store-room, recreation-room and parlour for matron ; on the upper floor, girls' dormitories, linen and bath-rooms and bed-rooms for the female members of the staff. The boys' home is divided on the ground floor as follows : boys' infirmary, teachers' room, store-room, band-room, lavatory and bath-rooms, boys' play-hall and school-room. On the second floor, are linen-room, boys' dormitory and bed-rooms for the male members of the staff.

The outbuildings consist of cottage for foreman, gymnasium with root-house underneath, laundry and dry-room, bakery, barns, hen-house, boat-houses, shops for carpenter and shoemaker, wood-sheds, house for hydraulic ram, and elevated tank.

The buildings are all kept in good condition; a new launch-house, 30 x 20 feet, and a shed, 30 x 14 feet, were built by the carpenter and his apprentices during the year.

Accommodation.—The institution can conveniently provide accommodation for seventy-five pupils and a staff of eight officers.

Attendance.—During the year sixty-two pupils were inscribed on the roll and the average attendance was over fifty-seven.

Class-room.—The work in the school-rooms was satisfactory. The boys and the girls are taught in separate buildings and by different teachers.

At the close of the year the pupils were graded as follows :—

Standard I.	2
" II.	10
" III.	13
" IV.	15
" V.	13
" VI.	5
Total.	58

Of this number thirty were boys and twenty-eight were girls.

Farm and Garden.—All the boys receive instruction in gardening and farming. The junior boys attend to the flower and vegetable gardens, and the senior boys do the heavier work on the farm. This year we have about thirty-five acres under cultivation and the crops look exceedingly well.

Our live stock consists of ten cows, one bull, one heifer, three calves, one span of horses, ten pigs and about one hundred and twenty fowls.

Boys' Industrial Work.—*Carpentry.*—Mr. Henry Butsch is our instructor in carpentry and with his four apprentices made a considerable quantity of new furniture, built a new launch-house and an addition to the barn, besides attending to all repairs.

Shoemaking.—Mr. J. M. Read is in charge of this trade and with the assistance of his six apprentices supplied all the pupils with substantial footwear.

Painting.—All the painting and whitewashing was done by three boys.

Baking.—This branch of industry is under the supervision of two boys, who are assisted in preparing the dough by eight of the senior boys.

Dairying.—Two boys have charge of this department. They operate the cream separator, do the churning and make very good butter. The milking is done by five boys.

Laundrying.—This work is done, under the superintendence of the matron, by boys and girls.

Girls' Industrial Work.—The girls made most commendable progress in all kinds of housework, hand and machine sewing, cutting and finishing dresses. Their fancy

work, of which there is quite a variety, was greatly admired by the many visitors who called at the school.

Moral and Religious Training.—Religious instruction is daily imparted for half an hour to the pupils. Morning and evening prayers are said in common.

Health and Sanitation.—On the whole the health of the pupils was good; however, two boys were discharged upon the doctor's advice and one of them died at home of consumption, that dreadful disease so prevalent amongst Indians. One girl, whilst attending to the fire in the kitchen, ignited her clothes and got terribly scorched; she was for several months in the Chemainus General Hospital and is now well again. Another girl suffered from inflammatory rheumatism. The sanitary condition of the school is very satisfactory.

Water Supply.—An abundant supply of pure fresh water, from natural springs, is always on hand and a large hydraulic ram forces the water into an elevated tank.

Fire Protection.—The boys are bi-monthly drilled in the use of fire-appliances, which consist of fifteen Star chemical fire-engines, twenty fire-buckets, ninety feet of fire-hose and two fire-axes. There are permanent fire-ladders on the roofs of the buildings and other ladders, to reach the roofs quickly, are always on hand. There are also small hydrants to which a fire-hose can be readily attached near all the principal buildings.

Heating and Lighting.—The heating of the buildings is done by ordinary wood-stoves, whilst the lighting has so far been provided by means of coal-oil lamps; but very likely a plant for an acetylene generator will be installed in the near future.

Recreation.—Baseball, football, fishing, boating, swimming and marble-playing are the principal outdoor amusements of the boys during the summer; whilst coasting, chess and checkers are the leading games in the winter. The girls in their own playground amuse themselves at swinging, skipping and playing ball. The greatest attraction and delight of every pupil is, however, our brass band, which is still under the leadership of Foreman Butsch.

General Remarks.—In conclusion I tender my sincere thanks to Superintendent Vowell and Agent Robertson for the courtesy and assistance which I have received during the year.

I have, &c.,

G. DONCKELE,
Principal.

BRITISH COLUMBIA,
LYTTON (ST. GEORGE'S) INDUSTRIAL SCHOOL,
LYTTON, July 7, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit my annual report for the fiscal year ended June 30, 1904.

Location.—The school is situated two and a half miles from Lytton, which is on the main line of the Canadian Pacific Railway, and is on the east of the Fraser river, about a half mile from the water. The Lytton-Lillooet road passes by the building.

Land.—We have about six hundred acres of land. Lots eleven and twelve, and forty-seven, group one, Yale district, and the rest Dominion government lands, and we are taking in another one hundred and sixty acres of these lands.

The soil is sand, sandy loam, and clay, well suited for mixed farming and fruit-growing. We have much more under cultivation this year than last—between fifteen and twenty acres—and have the place in much better condition.

There has been an abundance of water for irrigation. The properties are all owned by the New England Company.

Buildings.— The school-building is in good repair. We have lined the basement throughout with cedar shiplap and tar paper, and have put in wire screens to all doors and windows.

The wood-shed, cook-room, and small office mentioned in last annual report are finished, and in addition we have built a stable for sows and team, with a loft for hay, and space beneath for wagons and implements, and have the timbers out for a blacksmith's shop.

At the north end of the farm we are building a dairy for twenty cows, which will, I hope, be finished in a month or so.

The barn at the school end of the land is 30 x 50 feet over all, and the one at the north side, of which the foundation is laid, is 60 x 40 feet. The height of both is about 30 feet.

The buildings comprise the main building, which is used for school purposes and contains school, sleeping and dining-rooms, laundry, kitchen, cloak-room, store-rooms, bath-rooms, shoemaker's and carpenter's shops ; two barns complete ; cattle-sheds ; two pig-pens ; chicken-house ; five root-cellars ; dairy ; granary ; farmhouse ; implement-shed ; wood-shed, with Chinaman's room and office ; and two log houses. for farm-hands and carpenter.

Accommodation.—There is accommodation for forty boys and a staff of four.

Attendance.—We have at present twenty-five boys in attendance and have had twenty-seven admitted, one of whom was discharged as physically unfit, and one absconded and has not yet been arrested.

Class-room Work.—The hours of school are from nine a.m. to twelve and from seven p.m. to eight. The subjects taught include reading, writing, arithmetic, dictation and singing. The first lot of boys who came at the beginning of last year are still using the first reader, but will be promoted to a higher grade in a few weeks.

Farm and Garden.—I am able to report a great advance in these. The crops are better, owing to the land being in improved tilth; the work being consequently lighter, the boys are much more useful. We have cut two crops of alfalfa, and one of clover and oat hay and have nearly ripe, about thirty acres of wheat, besides barley, oats, beans, roots, pease and corn.

The small fruits are a heavy crop, and the trees are laden with clean-looking fruit in both parts of the orchard land.

The kitchen garden, with sweet corn, pease, lettuce, onions, rhubarb, beans, marrows, parsley, carrots and turnips will give us a good supply, but the flower garden is rather a failure owing to the almost entire absence of rain.

Industries Taught.—Shoemaking and carpentering, besides farming and fruit-growing are taught.

Moral and Religious Training.—We have daily readings and instruction in the Bible, besides our daily prayers, and two services on Sundays with school from two to three o'clock in the afternoons. There has been no serious trouble with the morality of the school and the conduct has been excellent when one considers the natural deformities of these Indians.

Health and Sanitation.—The health has been good and we have had no sanitary difficulties, having plenty of fresh air, a sufficient supply of water and good food well cooked.

Water Supply.—This is obtained by gravity, from Botame creek, and is laid from top to bottom of the school-building. The immediate supply is from a tank, 23 x 12 x 7 feet, connected by an inch and a half pipe.

Fire Protection.—An inch and a half pipe, perforated every six inches, runs around the peaks of the roofs, a fire-escape with ladders is placed at the north and south dormitories, a wire-bound rubber hose near each room, where water taps, buckets and axes are always on hand.

Heating and Lighting.—The heating is done by hot-air furnaces, which do not work satisfactorily in strong winds, as the heat is then driven to one or the other side of the building.

The light is furnished by coal-oil lamps, which are all secured well in place.

Recreation.—The children do not take readily to set games, either of football or any other game, but follow their own apparently constituted order of bows and arrows, darts, stilts and swimming, and are very resourceful in finding amusements. They have about three hours each day for play, apart from drill.

I have, &c.,

GEO. DITCHAM,
Principal.

BRITISH COLUMBIA,
METLAKATLA INDUSTRIAL SCHOOL,
METLAKATLA, July 25, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit this report for the year ended June 30, 1904.

Location.—This school is situated in the village of Metlakatla on the reserve of that name on the south side of the Tsimpsean peninsula. The location is generally admired for the fine wide view which it affords, on one side of hemlock and spruce covered hills and mountains, and on the other of sea and islands.

Land.—About fourteen years ago six acres of land were given by the Indians of this village for the use of the school, since then they have also given the site on which the girls' branch is built, and some small pieces of land for playground and other purposes.

Buildings.—These are as follows : the main building in the boys' division, a two-story frame structure, having a frontage of 90 feet by 60 feet deep ; containing on the lower floor, a parlour, office, two dining-rooms, infirmary, sewing-room, kitchen and store-rooms ; and on the upper floor, the principal's bed-room and eight small dormitories.

The girls occupy a large, substantial frame building, the inside nicely finished with plaster. It has a frontage of 64 feet by 22 feet deep, and two wings 20 feet wide extending back 40 feet. The rooms on the first floor are : reception, class, dining and cloak-rooms, pantry, lavatory, kitchen and store-rooms. On the second floor are, the matron's the assistant's and teacher's rooms, two large dormitories, a room used as a hospital and one for clothing. Above these there is a half story with attics. In the basement there is a large room.

The laundry is an annex, 19 feet 4 in. x 19 feet.

The other buildings are, a comfortable school-house in which the boys are taught; another divided into carpenter and shoemaker's shops, laundry and store-room, also a coal-house, a stable, and a fowl-house.

Accommodation.—In the boys' division the accommodation is rather limited, but otherwise good, there being in all the dormitories, including the room set apart for the sick, only sufficient space for twenty-seven beds. In the new building, now occupied

by the girls, there is ample accommodation for thirty pupils, a matron, and two assistants.

Attendance.—The average attendance was about fifty-four pupils; twenty-seven boys, and an equal number of girls, except during the salmon-fishing season, when most of the boys are allowed to go out to assist their parents to earn the family living.

Class-room Work.—A great part of the time of the elder and more advanced pupils, both boys and girls, was necessarily taken up with their industrial occupations; and on that account, these pupils were only present at class instruction half the day, but the younger children attended school all day.

The boys were taught by the principal and the girls by Miss H. Jackson. Satisfactory progress has been made in all subjects of instruction.

All speak English, and many of them quite familiarly.

At the end of the year the pupils were graded as follows :—

	Pupils.
Standard I.	0
" II.	7
" III.	21
" IV.	10
" V.	16

A total of fifty-four.

Industrial Work.—Fifteen boys received instruction in carpentry and painting. They were employed re-shingling and re-flooring the main building in the boys' division, fencing, making and repairing furniture, &c. All the boys occasionally worked at gardening, and a few at shoemaking.

The girls were taught domestic, laundry and needlework, and marked advancement is noticeable in their work and manner of doing it.

Ten of the elder girls can cut out and make their dresses.

Garden.—The garden is small, but well worked, and kept in fine condition. We got from it a good quantity of delicious fruit, and a large supply of vegetables of excellent quality.

Moral and Religious Training.—The Bible is used as a reading text-book, and three-quarters of an hour are given daily, except on Saturdays, to religious teaching. The pupils join morning and evening in prayer, and on Sundays attend the church services, and also the village Sunday school.

The Rev. J. H. Keen gives religious instruction twice a week in the class-rooms.

Fire Protection.—Chemical fire-extinguishers, buckets, ladders, fireman's axes and water are on hand. But the greatest protection against fire is the metal shingles, with which the buildings occupied by both the boys and girls are now covered. The instructor and pupils finished, about the end of last month, the covering of the main building of the boys' division, with galvanized metal shingles, kindly supplied by the department, and that lessens very much all danger from fire.

Heating.—The rooms on the lower floors are heated by coal stoves; but the dormitories have no heating appliances.

Recreation.—The boys most frequently play football and baseball. They are also fond of archery, swimming and boating. Indoors in winter, their favourite pastimes are reading, singing, and playing crokinole and checkers.

The girls amuse themselves outdoors with swinging and skipping, and indoors with lotto, dominoes, and other games. During the winter months, one evening each week was devoted by them to singing, and musical exercises, and at the end of the season a very pleasing entertainment was given.

General Remarks.—About the end of October last, we had the pleasure of a visit from Superintendent Vowell of this province.

Mr. Morrow, the agent for this district, made several visits, and takes a warm interest in the welfare of the school.

I have again to thank Miss West and other ladies, for their kindness in continuing to teach the pupils in the Sunday school.

I have much pleasure in stating that the reports received, regarding pupils discharged from this school, show that the conduct of these ex-pupils, with very few exceptions, is satisfactory.

I should, before closing this letter, gratefully mention that Miss Davies, the lady in charge of the girls' division, has given her services for more than two years without any salary or other reward.

I have, &c.,
JOHN R. SCOTT,
Principal.

BRITISH COLUMBIA,
WILLIAMS LAKE INDUSTRIAL SCHOOL,
150 MILE HOUSE P.O., July 20, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report for the year ended June 30, 1904.

Location.—This school is pleasantly situated in a fertile valley along the San Jose creek, one hundred and thirty-five miles from Ashcroft, a station on the Canadian Pacific Railway line. It is not situated on a reserve.

Land.—All the land, for the greater part only pasture-land, belongs to the Oblate Fathers.

Buildings.—No new building has been erected this year; part of an old building that was the first school-house in Cariboo, has been altered into a carpenter-shop ; its dimensions are 24 x 26 feet The girls' home has on the lower floor : a school-room, a store-room, two parlours and sewing and play-rooms ; the upper floor contains a dormitory, a bed-room, chapel, bed-rooms for the staff, and music-room; in the attic it situated a second store-room and wardrobes.

The boys' home comprises on the lower floor : school-room, bed-room, parlour, play-room and lavatory ; on the second floor : dormitory, store-room, sick-room and bed-room for the foreman ; in the attic is located the boys' wardrobes.

Accommodation.—Accommodation can be easily provided for ninety pupils, with necessary staff.

Attendance.—Forty-five pupils have been attending school regularly throughout the year.

Class-room Work.—Gratifying progress in both departments was continued in the school-room. As much as possible we adhere to the programme of studies authorized by the department. At the close of the year the pupils graded as follows :—

	Pupils.
Standard I.	10
" II.	3
" III.	15
" IV.	12
" V.	5

Farm and Garden.—Although spring was very late the different crops, except wheat, look well. Fortunately we have always more than a year's supply of flour, so we shall not be obliged to buy much flour.

Industries Taught.—As our Indians here are mostly farmers, agriculture takes the first place. All the larger boys assist in all gardening and field work, while three other boys have been constantly employed in the carpenter-shop.

The girls receive regular instruction in everything a good housewife is expected to know : cooking, baking, laundry, needle and housework.

Moral and Religious Training.—Particular care is taken by all the employees in training the children to be obedient, truthful, honest, kind and obliging. Religious instruction is given daily by the principal ; morning and evening prayers are said in common, and on Sundays the children take part in the singing at high mass in the church.

Health and Sanitation.—All the pupils have enjoyed excellent health ; only one girl took sick while at home, where she died towards the end of November. The drainage is good and cleanliness strictly enforced.

Water Supply.—Nothing, unfortunately, has been done to improve the water supply and to utilize to its full capacity the splendid water system built by my predecessor.

Fire Protection.—All fire-appliances are always kept ready at hand. Ladders are laid on all the roofs ; the chimneys are made of terra-cotta pipes and frequently cleaned ; there are also good glass-lined fire-extinguishers and a good supply of pails always filled with water.

Heating and Lighting.—The lighting is by coal-oil lamps and the heating by ordinary box-stoves.

Recreation.—The boys indulge in every kind of sport, but in summer their favourite games are football and baseball, while in winter they delight in skating on the frozen lakes and creeks.

General Remarks.—In concluding, it gives me great pleasure to mention here the painstaking zeal of all my staff, but particularly of the good sisters, in performing the duties they have undertaken, which at times are very trying. I must also gratefully acknowledge the many services and the unremitting attention paid to the school by our worthy agent, Mr. E. Bell, and Superintendent A. W. Vowell.

I have, &c.,

H. BOENING,

Principal.

MANITOBA SUPERINTENDENCY,
LAKE MANITOBA INSPECTORATE,
PORTAGE LA PRAIRIE, October 1, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report of my inspection of industrial, boarding and day schools of my inspectorate for the past year.

BRANDON INDUSTRIAL SCHOOL (METHODIST).

Inspected March 17 to 30, 1904. Number of pupils in attendance, one hundred ; boys, forty-eight ; girls, fifty-two ; classified as follows :—

	Pupils.
Standard I.	40
" II.	9
" III.	26
" IV.	21
" V.	4

Staff.—Principal, Rev. T. Ferrier; assistant principal, James Parr ; farmer, J. G. Milne; gardener and fireman, H. Goodland; carpenter, W. J. Williams; matron, Miss Helen Sutherland ; assistant matron, Miss Martha Burke ; senior teacher, Mrs. Williams ; junior teacher, Miss Lucy Brett ; cook, Miss M. Shields ; seamstress, Miss P. Black ; laundress, Miss Orser. The class-room work is divided into two departments ; Mrs. Williams has charge of the senior division, and Miss Brett of the junior division.

I am pleased to report that both divisions showed an improvement over my former inspection. The work done is highly commendable. The larger boys and girls attend classes for half the day, the balance is devoted to practical training, the boys on the farm and in the workshop, the girls in domestic housework in all its branches.

Mr. Ferrier has an excellent staff. All appear to work harmoniously together for the common good.

Particular attention is paid to farm work, but other branches of training are not neglected.

The farming operations showed an apparent profit of $1,282 for the past year.

The buildings are in a fair state of repair. Considerable new plumbing has been done and the main building and principal's residence are now complete in this respect. A new dwelling for the carpenter has been erected this summer.

The buildings are lighted by electricity, the ventilation is good. I found the fire appliances in good working condition. The institution is entirely maintained by the departmental grant.

BIRTLE BOARDING SCHOOL (PRESBYTERIAN).

Inspected October 6 to 9, 1903. Number of pupils enrolled forty-three ; boys, fifteen ; girls, twenty-eight.

Classification :—

	Pupils.
Standard I.	19
" II.	7
" III.	12
" IV.	5

Staff.—Mr. E. H. Crawford, principal ; Miss A. McLaren, matron ; Miss T. McLeod, assistant matron ; Miss McGregor, teacher.

This institution continues to do excellent work. Miss McGregor in the class-room is one of the best teachers whom I have met engaged in this kind of work. Miss McLaren and Miss McLeod have been long connected with the school, and needless to say they are very deeply interested in its welfare. Mr. Crawford is a young man, full of energy and zeal. There is no farming in connection with the school, but it has a large and well-kept garden, which supplies all the vegetables used in the institution.

The buildings are in fair repair. I regret to report that the stable was destroyed by fire about a year ago ; it was immediately rebuilt.

During the past year a system of water-works has been installed. The main building is now supplied with fresh spring water for domestic and fire purposes. Each flat is furnished with fire-hose. These are supplied from a large tank in the attic, fed by a gasoline engine in the basement.

In my visits to the various reserves of the Birtle agency, I have met quite a number of ex-pupils of the school and with very few exceptions they are all doing well. I may mention that this school is very popular with the Indians, and the effect of the work done both inside and out is quite apparent throughout the agency.

PINE CREEK BOARDING SCHOOL (ROMAN CATHOLIC).

Inspected August 5, 1904. Enrolment, fifty-seven : boys, twenty-four ; girls, thirty-three. Classification :—

	Pupils.
Standard I	6
" II	3
" III	17
" IV	12
" V	8
" VI	11

A day school is also connected with this school, in which the same training is given as in the boarding school. The enrolment is fifteen : boys, five ; girls, ten Classified as follows :—

	Pupils.
Standard I	4
" II	6
" III	1
" IV	3
" V	1

This institution maintains its high standard of work. The examination of pupils showed marked progress over last year. I have no hesitation in reporting that the class work of this school is the best in my inspectorate.

Rev. Father Chaumont, O.M.I., is principal, assisted by an ample staff of clericals of both sexes. The industries taught are varied and of such a nature as to best fit the pupils for the various walks in life. It differs from our industrial schools only in name.

The main building is of solid stone, 49 x 114 ft., two stories high, besides basement and attic. It has accommodation for one hundred pupils. The heating is by steam. It is protected against fire by three tanks of water located in the top of the building, and connected with each flat by fire-hose. At the time of my inspection, there were no outside fire-escapes, but the department has made a grant for this purpose, and it was the intention of the principal to have them erected this season.

The water-supply is taken from Pine creek. It is pumped to the building by a gasoline engine. I am of opinion that the water is not very pure. Wells have been dug, but the water is too salt to use.

PORTAGE LA PRAIRIE (SIOUX) BOARDING SCHOOL (PRESBYTERIAN).

The staff consists of : W. A. Hendry, principal; Mrs. Hendry, matron; Miss Hendry, assistant matron.

This school has a departmental grant for twenty pupils, at $72 per annum each. There are twenty-two pupils enrolled. Classification :—

	Pupils.
Standard I	5
" III	15
" V	2

The departmental grant pays the running expenses, except the salaries of the staff, which are provided by the Church Missionary Society; part of the clothing is also furnished by the society.

I am pleased to report a small cash balance on hand with all accounts paid at the end of the past fiscal year.

Mr. Hendry acts as teacher, and attends to the outside work of the school; Mrs. Hendry as matron, and Miss Hendry, as assistant matron, perform their duties in a highly satisfactory manner.

The majority of the pupils are young. The class-room work is very good. The moral tone of the institution is excellent.

The school is located within the limits of the town, and has the town fire-protection. Electric light is used, and the heating is by hot-air furnaces.

The building is frame and is kept in good repair.

The girls are instructed in domestic housework and needlework, and when discharged from the school are competent as servants; their services are in good demand. The boys, owing to lack of sufficient land, have not much opportunity outside of the class-room. As an auxiliary to the industrial school it is all right.

DAY SCHOOLS.

PORTAGE LA PRAIRIE AGENCY.

SWAN LAKE (PRESBYTERIAN).

Inspected July 4, 1904. K. M. Garrioch, teacher.

Enrolment, eight. The average attendance for the past fiscal year was four. Five pupils were present on the day of my inspection. Little or no advancement was shown; the teacher appears to have lost his zeal in the work.

Frame school-building is in fairly good repair.

ROSEAU RAPIDS SCHOOL (UN-DENOMINATIONAL).

Inspected July 7, 1904. Miss Annie Ramsay, teacher. Enrolment, twenty-eight; with an average attendance for the past nine months of the fiscal year of twelve pupils.

This school was opened last fall, and is much appreciated by the Indians, Miss Ramsay is an excellent teacher, and the pupils have made surprising headway for the short time the school has been in operation. It is a new frame school-house in good repair.

BIRTLE AGENCY.

OKANASE SCHOOL (PRESBYTERIAN).

There is only one day school in this agency, situated on Keeseekoowenin's reserve. Rev. Mr. Macalister is the teacher in charge. I regret that he was absent when I inspected the reserve. I understand that the attendance is fairly good, and that Mr. Macalister is an excellent teacher. It is a log school-house and is in good repair.

MANITOWAPAH AGENCY.

SANDY BAY SCHOOL (ROMAN CATHOLIC).

Inspected July 23, 1904. Miss Kate O'Donnell, teacher. Pupils enrolled, forty-six; present at inspection, twenty-nine. The average attendance for the past fiscal year was sixteen. Classification :—

	Pupils.
Standard I.	36
" II.	4
" III.	5
" IV	1

The attendance at the school is comparatively small in comparison with the seventy-two children of school age on the reserve. The principal cause of this is the long distance that many of them are from the school. Miss O'Donnell has done conscientious work while in charge of this school.

It is a frame school-building, in good repair. A large frame boarding school, on a stone foundation, was in course of construction. I understand it will be ready for occupation early this winter. This should prove a great acquisition to this and the neighbouring reserves.

LAKE MANITOBA SCHOOL (ROMAN CATHOLIC).

Inspected July 25, 1904. Mr. L. E. Martel, teacher. Enrolment, twenty-one; present at inspection, eleven. The average attendance for the year was ten and a half. Classification:—

	Pupils.
Standard I	7
" II	6
" III	8

This was my seventh inspection of this school, and I am sorry to report that no perceptible improvement has taken place since my first visit. Some years it is a little worse than others. Parents take but little interest in education, and many of the band are too far from the school for the children to attend. It is a log schoolhouse, in good repair.

EBB AND FLOW LAKE SCHOOL (ROMAN CATHOLIC).

This school was without a teacher at the time of my visit. Miss Annie Ramsay, late of the Roseau school, has been engaged to take charge this day. The Indians of this small band take considerable interest in the school, and the attendance is generally good, considering the small number of children.

It is a log school-building requiring some repairs, which I expect will be made before winter sets in.

UPPER FAIRFORD SCHOOL (CHURCH OF ENGLAND).

We passed this school on a Saturday evening. I could not wait over to inspect it on Monday, besides I had been given to understand that the teacher, the Rev. George Bruce, had resigned. The enrolment for the June quarter was eighteen, and the average attendance for the past year nine and three-fourths. The school is a comfortable frame building in good repair.

LOWER FAIRFORD SCHOOL (CHURCH OF ENGLAND).

Inspected July 30, 1904. Robert Bruce, teacher. Enrolment, twenty-seven, present at inspection, twenty-five. The average attendance for the past fiscal year was seventeen pupils.

Classification :—

	Pupils.
Standard I	17
" II	4
" III	6

I am pleased to report a slight improvement in this school. The teacher has shown more energy the past year, with a consequent reflection in the pupils; the work is still far from perfect.

LITTLE SASKATCHEWAN SCHOOL (CHURCH OF ENGLAND).

Inspected July 29, 1904. John S. Favell, teacher. Enrolment eighteen; present at inspection, seventeen. Average attendance for year, eleven. Classification :—

	Pupils.
Standard I.	9
" II.	3
" III.	6

Mr. Favell has done very good work during the past year, and I am pleased to note a decided improvement in his school. He is naturally one of the cleverest teachers we have, but he lacks normal school training. His services are valuable on the reserve. The school is a log building in good repair. Whooping-cough has been epidemic on this and neighbouring reserves the last three months.

LAKE ST. MARTIN SCHOOL (CHURCH OF ENGLAND).

Inspected July 29, 1904. Charles H. Fryer, teacher. Mr. Fryer has just commenced work, having succeeded Mr. Dobbs, who was removed to Shoal River school.

There is an enrolment of thirty-five; present at inspection, twenty-three. The average attendance for the year was twenty-four and a half. Classification :—

	Pupils.
Standard I.	27
" II.	3
" III.	4
" IV.	1

As Mr. Fryer had just started to teach, and was new to Indian work, it would be unfair to criticise his work. He has educational qualifications, and appears to be energetic. This school made considerable progress under Mr. Dobbs, and there is no reason why it should not continue, as the Indians are much interested in the education of their children—more particularly the newly elected chief, who has many advanced ideas. A new building is required here.

WATERHEN RIVER SCHOOL (ROMAN CATHOLIC).

Inspected August 3, 1904. Lucien Guillot, B.A., teacher. This school has an enrolment of fourteen pupils; present at inspection, eleven. There is an average attendance of eight pupils. Classification :—

	Pupils.
Standard I.	9
" II.	4
" III.	1

Mr. Guillot has only taught here a few months. He is from Paris, France. His English is imperfect. He appears anxious to do his best, but is badly handicapped by his lack of English. In short he is out of his element. The school-house is in good repair.

PINE CREEK SCHOOL (ROMAN CATHOLIC).

The report of this school is included with that of the boarding school of like name.

SHOAL RIVER SCHOOL (CHURCH OF ENGLAND).

This school was closed at the time of my visit. Mr. T. H. Dobbs, late of the Lake St. Martin school, had just arrived to take charge, but had not yet commenced his duties.

PAS AGENCY.

GRAND RAPIDS SCHOOL (CHURCH OF ENGLAND).

Inspected August 15, 1904. M. M. Simpson, teacher, who has since been succeeded by Rev. M. Brown, an ordinary Indian missionary. The enrolment was fourteen and the number present at inspection was nineteen. The average attendance for the last nine months of the fiscal year was eleven pupils. Classification :—

	Pupils.
Standard I	8
" II	3
" III	3

I was much pleased with Mr. Simpson's work. The pupils showed marked proficiency in arithmetic ; in this branch of study Indian children are generally deficient. It is a log school-building in a fair state of repair.

CHEMAWAWIN SCHOOL (CHURCH OF ENGLAND).

Inspected August 18, 1904. F. Barker, teacher. Enrolment twenty-nine ; present at inspection, twenty-three. This school has been closed for some time. Mr. Barker had only been teaching about three weeks. The pupils had forgotten nearly all they had previously learned. Mr. Barker gives promise of being a good teacher.

It is a log school-house in rather poor repair. The band promised to put it in repair before winter.

MOOSE LAKE SCHOOL (CHURCH OF ENGLAND).

Inspected August 20, 1904. Isaiah Badger (an Indian) teacher. Enrolment was thirty-two and the number present at inspection was twenty-nine. There was an average attendance of fifteen pupils for the year. Classification :—

	Pupils.
Standard I	28
" II	4

Mr. Badger had only been teaching about three weeks. He found the school very much run down. He may do very fair work if he continues as he promised at the time of my visit.

The building used for school purposes is rented from the Church Missionary Society and is very much out of repair.

THE PAS SCHOOL (CHURCH OF ENGLAND).

Inspected September 13, 1904. Mr. R. A. McDougall, teacher. Enrolment, forty-four ; present at inspection, thirty. The average attendance for the past fiscal year was twenty as compared with twelve for the preceding year.

Classification :—

	Pupils.
Standard I	24
" II	10
" III	3
" IV	3
" V	5

This is decidedly the best school in the agency, and the best day school in my inspectorate. Mr. McDougall is an excellent teacher, and has had long experience in

this kind of work. It is a real pleasure to inspect this school. It shows what may be accomplished when Indian children are under expert tuition.

It is a frame school-house, with two class-rooms, in good repair.

BIG EDDY SCHOOL (CHURCH OF ENGLAND).

Inspected September 12, 1904. Albert William Smith (an Indian) teacher. Enrolment, twenty-four; present at inspection, fifteen. Average attendance, ten. Classification:—

	Pupils.
Standard I	17
" II	6
" III	1

Mr. Smith has only been here a short time. I was not at all impressed with his work. He has very little education, and his English is very imperfect. I fear this school will make but sorry progress under his teaching.

It is a log school-house in fair repair.

SHOAL LAKE SCHOOL (CHURCH OF ENGLAND).

Inspected August 25, 1904. Louis Cochrane (an Indian) teacher. Enrolment, eleven; present at inspection, thirteen; average attendance for year, ten. Classification:—

	Pupils.
Standard I	6
" II	2
" III	1
" IV	2

I am glad to report that this school has maintained the favourable opinion I entertained of it in my last report. Considering the limited education of the teacher, it is wonderful the work he is doing both in and out of the school. He is a very useful man among the Indians.

The building used for school purposes is rented from the Church Missionary Society; it is in fair repair.

RED EARTH SCHOOL (CHURCH OF ENGLAND).

Inspected August 26, 1904, George Crane (an Indian) teacher. Enrolment nineteen; present at inspection, sixteen; average yearly attendance, fifteen. Classification:—

	Pupils.
Standard I	16
" II	1
" III	2

The building used for school purposes, is rented from the Church Missionary Society. It is in a poor state of repair.

CUMBERLAND SCHOOL (CHURCH OF ENGLAND).

Inspected August 30, 1904. Alex. Seymour, teacher. Enrolment, twenty-three; present at inspection, twenty-eight; average attendance, ten. Classification:—

	Pupils.
Standard I	21
" II	1
" III	1

Mr. Seymour is an Englishman and has been teaching here the last nine months. I was much pleased with his work. He is painstaking and energetic, doing his best with the poor material he has. He has had six years' experience in this kind of work.

The building used for school purposes is an old log chapel, belonging to the Church Missionary Society.

The teacher, who is a married man with a family, occupies part of it. It is in a state of decay, and will not stand much longer.

GENERAL REMARKS.

In a few of the reserves where the Indians come in contact with English-speaking people, and English is partly spoken, the conditions are somewhat better, but in a great majority of the reserves the mother tongue is the only one used, or heard out of the class-room. The best results I have seen of Indian education is from the boarding schools, and I am decidedly of opinion that it is the proper system of common school training. In the pupils and ex-pupils of these institutions, I find results I have failed to find in connection with the day schools.

I have, &c.,

S. R. MARLATT,
Inspector of Indian Agencies.

NORTHWEST TERRITORIES,
BATTLEFORD INSPECTORATE,
PRINCE ALBERT, September 30, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit the following report on the inspection of day, boarding and industrial schools for the year ended June 30, 1904 :—

EMMANUEL COLLEGE.

This institution is situated three miles from the town of Prince Albert. It was inspected on January 13 to 15.

The staff was constituted as follows : Rev. James Taylor, principal; A. L. Elliott, teacher; W. Brewster, general assistant; Miss F. Cockerill, matron; Miss V. Hounsell, assistant matron; Miss S. Sutherland, housekeeper.

There were fifty-two pupils enrolled, who were classified as follows :—

	Boys.	Girls.	Total.
Standard I	10	2	12
" II	9	11	20
" III	5	1	6
" IV	4	5	9
" V	2	1	3
" VI	2	..	2
Total	32	20	52

The ill effects of changing teachers frequently are apparent in the class work. At present, however, all the subjects of the programme are well taught and the general tone of the work is excellent. English is taught by a variety of methods and in connection with almost all subjects, but in the primary classes especially by regular language exercises, which are conducted in a thoughtful and practical manner. The teacher is well informed in his subjects, employs improved methods, has complete and easy control of his classes, and is full of energy and interest in his work. In consequence, the pupils on their part are obedient and attentive, always cheerful and well employed.

The equipment of the class-room has been improved by thirty-five patent desks supplied by the department. The blackboards required renewing, but the material for the purpose was on hand. In other respects the room is properly equipped. It is comfortable and the sanitary condition is good.

In addition to the regular hours of class work, which are from 9.30 a.m. to 12 noon, and from 1.30 to 3 p.m., there is a half-hour in the morning and an hour each evening for silent study under the teacher's supervision. This is designed especially for the benefit of the senior pupils who attend classes only half-time.

Two of the senior boys in July, 1903, passed the public school leaving examination held under the direction of the Department of Education for the Northwest Territories. This year these boys have written successfully at the examination for third-class teachers, showing a good year's work and a very creditable attainment.

All portions of the school-buildings were found in an excellent state of order and cleanliness. The boys' residence had undergone some slight repairs, and whitening, and was in a comfortable and sanitary condition. The boys, under the direction of the teacher, do the sweeping, washing of floors, care of dormitories, and practically all the work in connection with this building.

The boys are given a practical acquaintance with almost every detail of mixed farming. The principal products of the farm for the past season were as follows : 202 bushels of wheat ; 834 bushels of oats and 460 bushels of potatoes, in addition to a large quantity of garden stuff of great variety. The live stock on hand, consisting of four horses, seven cattle, nine pigs and some poultry, is carefully housed and cared for.

Considerable repairs to outbuildings and fences have recently been made, and further improvements are contemplated.

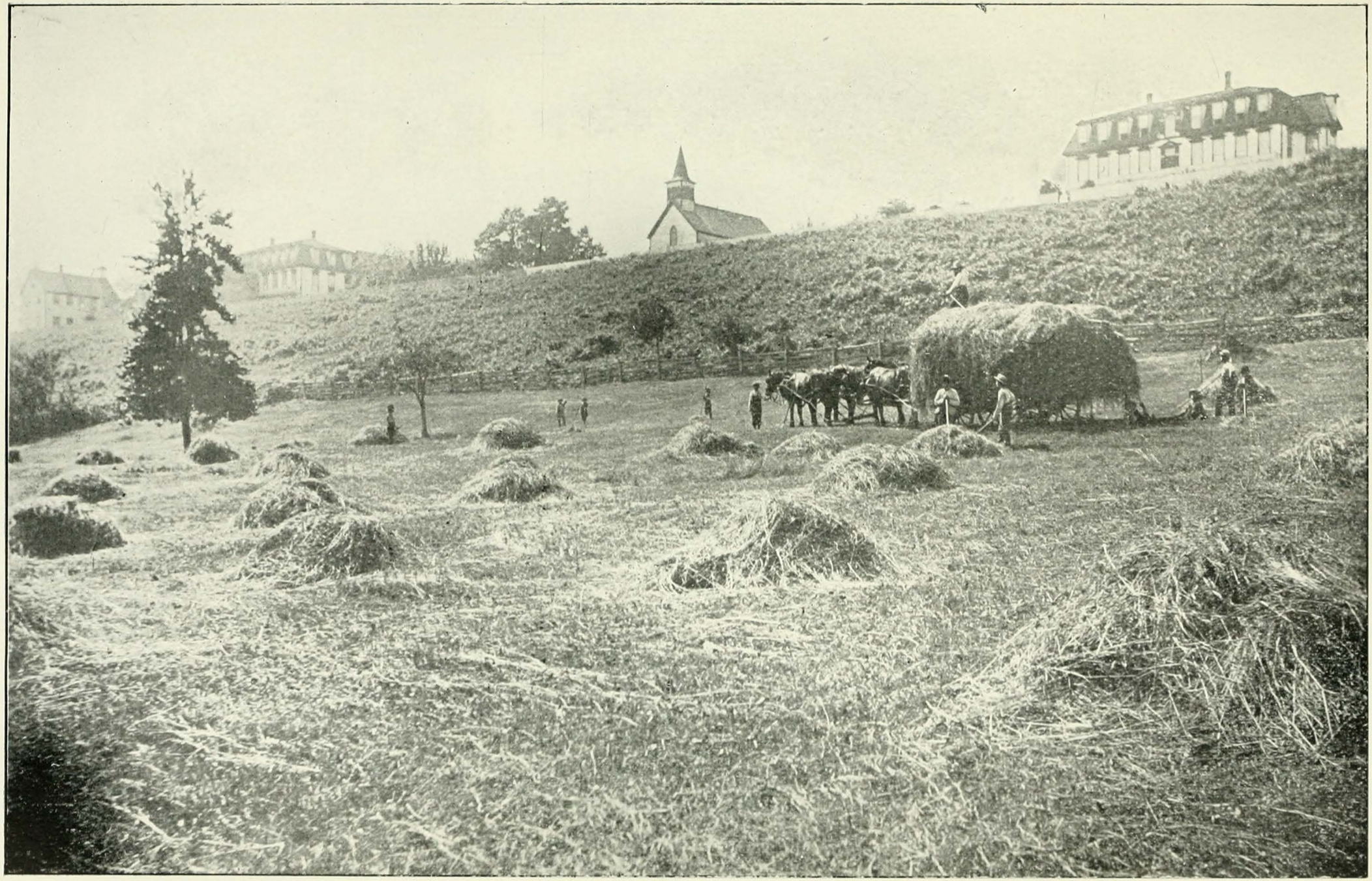
DUCK LAKE BOARDING SCHOOL.

This institution is situated one mile from the village of Duck Lake. It was inspected on January 26 to 28, 1904.

In September last, Rev. M. J. P. Paquette, who had been principal since the inauguration of the school in 1894, retired from the management and was succeeded by Rev. O. Charlebois. Early in July, last, the six reverend sisters who had conducted the domestic affairs of the school for nine years were withdrawn by the superioress of their order and were replaced by twelve Sisters of the Presentation, an order which, I am informed, is occupied more particularly with educational work. The remainder of the staff remains unchanged.

The enrolment at the date of inspection was one hundred and one pupils, contributed as follows :—

	Pupils.
From One Arrow's band	23
" Petaquakey's band	21
" Beardy's band	20
" 10 other bands more remote	19
" non-treaty	18



St. Mary's Mission (B.C.) School Buildings and Church. Boys at Work on Farm Making Hay. [433]

Only ninety-six pupils were actually in residence at the above date, the remaining five being absent on leave.

The classification of the pupils is as follows :—

	Boys.	Girls.	Total.
Standard I..	22	31	53
" II..	11	9	20
" III..	5	2	7
" IV..	9	5	14
" V..	7	..	7
Total..	54	47	101

The boys' class-room continues in charge of Mr. McKenna, and the work is conducted in the same manner as described in former reports and with similar results. Satisfactory progress has been made. Thoroughness marks all the work. The teacher's control over his pupils is complete, and their conduct everywhere reflects his influence.

In the girls' division, in charge of Sister Trinity, there is a noticeable improvement in the general tone and in the actual condition of the work. The discipline is exact; the methods of instruction are correct; there is a fair degree of animation in the exercises; the pupils display a lively interest in their work, and in spite of some timidity, an eagerness to do correctly all that is required of them. The examination included all the subjects except history, which as yet has received but slight attention. Fair progress is revealed, more marked in the primary forms up to and through standard III. Expression in reading is made a special aim. English is well taught and is being acquired rapidly. A fair instance is that of a girl of ten years, of average brightness, who entered the school in June last from a remote band and knowing at that time not a word of English. At the end of eight months in school, I found her in standard II, using easy English freely and writing it legibly.

The class-rooms are large, well heated and ventilated and equipped with all essential furniture, particularly comfortable desks, large blackboards in good condition, and convenient stationery cupboards. The school supplies were found in good order and show evidences of careful handling.

The industrial training of the boys is limited to farming, gardening, and the care of stock, which are taught in a practical way out of doors, while the theory of agriculture is taught in the class-room so far as the teacher's time will allow.

The product of the farm and garden for the season of 1903, was as follows :— six hundred and fifty-seven bushels of wheat, one hundred and forty-six bushels of oats, one thousand four hundred and forty bushels of barley and five hundred bushels of potatoes, besides a large quantity of roots and vegetables.

The live stock at the time of inspection consisted of six horses, fourteen cows and twenty-one young cattle, including some pure-bred Jerseys, besides pigs, hens, turkeys, geese and ducks. A good root-house is much needed, as the intention is to raise an increased quantity of roots for domestic use and also to improve the feed of dairy cows, calves and other stock.

The fire-protection consists of twelve extinguishers in good order and twenty-four hand-grenades, which would be efficient at least in case of incipient fire. In no event could there be serious danger to life from fire, as the means of escape are most complete.

There is a good supply of hard water from bored wells one hundred feet deep; but rain-water cisterns are entirely wanting and are an urgent necessity.

BATTLEFORD INDUSTRIAL SCHOOL.

This institution is situated two miles from the town of Battleford, on the south side of the Battle river. It was inspected on February 16, and following days.

The staff comprised Rev. E. K. Matheson as principal; B. Underwood, general assistant and accountant; J. E. Allen, teacher; J. H. Scott, farmer; C. Boughey, carpenter; Mrs. M. A. Ward, matron ; Miss E. Shepphird, assistant matron and nurse ; Miss F. A. Annett, teacher; Miss N. Hayes, seamstress; Miss H. Chisholm, cook ; Miss E. Schofield, laundress; Mrs. J. M. Scott, baker; and John Pritchard, nightwatchman.

During the nine months preceding this inspection eleven pupils were admitted, while one died and nine were discharged, the enrolled attendance now numbering eighty-six. Of these, three were absent on leave and one was out at service.

The attendance is drawn from the following sources :—

Red Pheasant's band	23
Moosomin's band	16
Sweet Grass' band	6
Poundmaker's band	7
Thunderchild's band	6
Five other bands	8
Non-treaty	20
	86

The pupils present at examination were classified as follows :—

	Boys.	Girls.	Total.
Standard I	4	5	9
" II	3	9	12
" III	11	18	29
" IV	9	12	21
" V	5	2	7
" VI	4	..	4
Total	36	46	82

The examination of the senior division was less satisfactory than usual. Oral exercises were an entire failure. Answers, which were invariably rendered in a low and timid voice, were generally incomplete and frequently condensed to a single word. Written work was more satisfactory and though indifferent as regards form, it revealed a greater accuracy of knowledge.

In the junior division, I found the children well and usefully occupied, their work carefully supervised, and a fair life and interest taken in all their exercises.

It was decided to rearrange the forms, making the division on the basis of sex rather than seniority, Mr. Allen taking the boys and Miss Annett the girls. On visiting the classes some time after, I found that a decided improvement had been effected by this change.

The four boys in standard VI wrote successfully at the public school leaving examination at midsummer.

The school desks, which are home-made and have been in use since the foundation of the institution, are now in a bad state of repair and no longer fit for use. The principal will estimate for a new supply. The blackboards also, which are made of a poor quality of lumber, are now full of cracks, rough, and can no longer be used to good advantage.

The school material is ample and is kept in good order, in secure cupboards.

Discipline is good throughout the school, and the training of both boys and girls in their various industries is of a most useful character.

The area of land under cultivation this season is fifty-one acres, namely, in wheat, ten acres; in oats, thirty-four acres; in speltz, one acre; in potatoes, three acres, and in roots and vegetables, three acres. The grain is moderately good, but the hoed crops are in a model state of cultivation and are scarcely to be surpassed anywhere.

The live stock shows evidences of excellent care. It consists of four horses, one pure-bred Ayrshire bull, sixteen cows, including one Ayrshire, and twenty-two pigs, namely, one Yorkshire boar, eight brood sows and thirteen store pigs.

A cream separator is in use in the dairy, from which nine hundred pounds of butter was supplied for the use of the school during the past season, while a large quantity of milk is used on the children's tables.

The poultry consists of hens only, which are cared for by the girls, under the direction of one of the female officers, who has shown an accurate knowledge of the work. The industry has been very successful and has contributed towards the children's food no less than four hundred and sixty-four dozens of eggs during the season in addition to a considerable weight of dressed chickens.

Repairs to buildings and to implements, and the making of window sashes, doors, cupboards, tables, &c., for the school, the agency buildings, the land office, and a few of the nearest neighbours, have afforded fair opportunities for training in woodwork to the senior boys under the direction of the carpenter. The chief repairs to buildings during the past year have been re-flooring some portions of the main building, and reshingling the principal's residence, an employee's cottage, the storehouse, and the stable.

In connection with repairs to buildings, a work which was urgently required and which the department has since authorized to be carried out, is the complete renewing of a portion of the main building consisting of a wing about 20 x 30 feet, of two stories, containing, downstairs, a recreation-room, and, up-stairs, a lavatory and bath-room. The repairs will involve a new foundation, sills, joists, two floors, and reshingling. In addition to this, various portions of the main building require re-flooring. In general, however, the buildings throughout are in a good state of repair.

The business affairs of the institution continue to be conducted on principles of strict economy, by which the principal has been able to meet all expenditure without incurring a deficit.

THUNDERCHILD'S BOARDING SCHOOL.

This school is situated eighteen miles from Battleford on the western border of Thunderchild's reserve. It was inspected on July 12.

The staff consists of Rev. H. Delmas, O.M.I., as principal; and the following reverend sisters of the Assumption: Sister St. Amable, superioress; Sister Ste. Octavie, teacher; Sister Marie Ange, teacher of music; Sister Ste. Prisque, seamstress; Sister St. Vincent Ferrier, laundress; and Sister Ste. Caroline, cook.

There are enrolled twenty pupils, namely: twelve boys and eight girls. There were present at inspection nineteen, namely: twelve boys and seven girls. One girl was absent on leave. The authorized attendance is twenty.

The pupils enrolled are classified as follows:—

	Boys.	Girls.	Total.
Standard I.	4	2	6
" II.	4	2	6
" III.	2	2	4
" IV.	2	2	4
Total.	12	8	20

The class work has been successful. It has been conducted systematically, all the subjects receiving due attention according to their importance. The pupils show fair skill in the practical use of numbers; written work is done with the greatest care; exercises in English are varied and well devised. The interpretation of words and phrases is done only moderately well, but expression in reading is better than usual and indicates a fair appreciation of the sense.

The class-room is rather small for convenience, but with the exercise of care it is kept properly ventilated. The furniture is well arranged and in excellent condition. Forty-five square feet of lumber carefully dressed and matched and covered with slated cloth affords a very suitable blackboard. The school stationery is in perfect order and most carefully handled.

It was found necessary to suspend one pupil, a boy of sixteen, on account of insubordination, but apart from this instance the conduct of the children on all occasions is commended by the staff and their behaviour at examination was highly creditable.

Small-pox visited the school during the winter. There were in all twelve cases including one member of the staff, yet none of them proved fatal and the health of the school has since steadily improved.

The clothes-presses are well furnished and in perfect order. The day of inspection was very warm and the children's clothing was not only exteremly neat, but was well adapted to the temperature.

The building has now been in use for three years, yet it is throughout in a perfect state of order, repair and sanitation, as when it was first occupied. The exterior has never been painted, but I understand provision has now been made for this.

The bakery and laundry are under separate roofs. The equipment of the former has been improved by the addition of a steel oven of a capacity of eighty two-pound loaves.

ONION LAKE CHURCH OF ENGLAND BOARDING SCHOOL.

This school is situated on Makaoo's reserve, a quarter of a mile from the agency buildings. It was inspected on March 14 and 15.

The staff at the date of inspection was composed as follows : Rev. J. R. Matheson, principal ; Miss A. L. Meikle, teacher ; Miss A. E. Phillips, matron ; Miss S. Haslitt, assistant matron ; Miss A. Cunningham, seamstress ; Miss M. Cassidy, M.D., physician and nurse.

The enrolment of pupils consisted of fifteen treaty children and twenty-two non-treaty. Of the treaty children nine belong to Onion Lake, one to Frog Lake, and five to Saddle Lake.

The pupils are classified as follows :—

	Treaty.		Non-treaty.		Total.
	Boys.	Girls	Boys.	Girls.	
Standard I.	3	3	5	4	15
" II.	—	—	6	2	8
" III	1	—	2	2	5
" IV.	2	3	—	1	6
" V.	—	3	—	—	3
	—	—	—	—	—
Total.	6	9	13	9	37

Miss Meikle, who has had charge of the class-room since January 1, is a capable teacher. The classes are under excellent discipline and in a good state of progress. The examination showed the following results : reading and interpretation, good ; spelling and dictation, good ; writing and written work in general show evidences of carelessness, which the teacher is endeavouring to check ; history and geography, properly taught and with fair results ; singing and drawing receive due attention.

The class-room is large, well lighted, and comfortably heated with two large stoves. It is furnished with twenty patent desks.

The residence building is in excellent order throughout. The accommodation is ample for the present attendance. The dormitories are now fully equipped with iron bedsteads. The boys' residence, which was begun last season, is not as yet available

for use, but it is the intention to have it completed during the present summer, so that it may be ready for occupation throughout, before winter.

As none of the Indian boys at present in attendance are more than thirteen years of age, there is but small scope for industrial training among them. For this purpose, however, two of the senior boys have been removed to the Battleford industrial school. Three girls, who are between sixteen and seventeen years of age and have been in attendance for eight or nine years, show in connection with the various departments of housework, as well as in their general conduct, evidences of careful and judicious training.

ONION LAKE ROMAN CATHOLIC BOARDING SCHOOL.

This school is situated on Makaoo's reserve, about half a mile from the agency headquarters. It was inspected on March 16 and 17.

The staff continues as at last inspection and is as follows : Rev. E. J. Cunningham, principal; Sister Ste. Prudentienne, superioress; Sister St. Patrick and Mary of Nazareth, teachers ; Sister St. Laurent supervises boys' work ; Sister St. Alexis supervises laundry; Sister St. Valerie, girls' seamstress; Sister St. Gustave, boys' seamstress; Sister St. Honorine, cook; Sister St. Praxede supervises housework; Miss E. Cunningham, assistant seamstress.

The present enrolment of treaty children numbers forty-three, of whom thirty-eight are Cree children belonging to the bands at Onion lake and five are Chipewyans from the Beaver river.

The non-treaty pupils number fourteen, two of whom are day pupils and twelve in residence.

The treaty pupils are classified as follows:—

	Boys.	Girls.	Total.
Standard I.	8	5	13
" II.	5	5	10
" III.	3	3	6
" IV.	4	4	8
" V.	3	1	4
" VI.	—	2	2
Total.	23	20	43

Five pupils were absent from classes for various causes and thirty-eight were present at examination.

In the examination of the classses I was assisted by Agent Sibbald and as usual certain exercises were conducted by the teachers. The work is conducted in much the same manner as it has been for some years past, and with such exact observance of method and routine that no effect is misdirected or futile. The following facts mainly were brought out in the examination. The pupils read freely and in an audible voice, but with certain prevailing faults of articulation and of expression which they seem to acquire from one another by imitation. They understand and answer intelligently plain questions arising out of the text. The command of the English language shown throughout the school is creditable, but more attention might with advantage be given in the fifth and sixth standards to the classification, relation and arrangement of words, phrases and clauses.

Moise McGarty, a creditable pupil of standard VI, fifteen years of age, who continued to show a lively interest in school work, was at the end of September last, transferred to the High River industrial school, in order to have the advantage of industrial training.

The building and furnishings are in excellent order in respect to cleanliness and sanitation generally. The children's clothing is neat and comfortable. Their food

is wholesome, consisting of a fair proportion of vegetables. The water-supply is good, though at a little distance from the school.

It is the policy of this school, as was the original intention regarding all boarding schools, not to keep boys in attendance beyond fifteen years of age, since after that age they appear to grow discontented and to have a bad influence over the younger pupils, while in many instances they receive but little, if any, additional benefit from their attendance.

BLUE QUILL'S BOARDING SCHOOL.

This institution is situated on the western side of Saddle Lake reserve, about six miles from the agency buildings. It was inspected on May 6.

The staff comprises Rev. Leon Balter, O.M.I., as principal, and nine reverend sisters, namely: Sister Laveille, superioress; Sister Laverty, head teacher; Sister Mayrand, assistant teacher; Sisters Nignette, Lagoff, and Colombe, who supervise the sewing and clothing; Sister Breault, secretary and nurse; Sister Celina, cook; and Sister Eugenie, laundress.

The enrolment on March 31, was thirty-nine pupils and is accounted for as follows:—

Enrolled on July 1, 1903	43	
Admitted since	2	
Total		45
Discharged	5	
Died	1	
Deduct		6
Enrolled March 31, 1904		39

Of those enrolled, thirteen were temporarily absent from classes. Those present were classified as follows:—

	Boys.	Girls.	Total.
Standard I	5	0	5
" II	4	1	5
" III	5	1	6
" IV	3	5	8
" V	1	0	1
" VI	1	0	1
Total	19	7	26

Promotions throughout all the standards had been made on April 1, and the pupils were in consequence occupied with new and more difficult work. They were, however, examined both in their present studies and in a review of former work. Of the regular subjects of the programme, grammar only is neglected, and yet the practical use of the language is taught with fair success. The other subjects, including geography and history, receive careful attention. The form of written work, both on slates and paper, is creditable. The committing of suitable passages of verse and prose and the reciting of these with appropriate expression and gesture continues to be used in connection with the regular class exercises with beneficial effect.

The discipline of the classes is good and the conduct of the pupil is creditable under every circumstance. Certain pupils wore medals and badges which had been awarded for good conduct, proficiency, and other merits. Boys of sixteen and seventeen years, recently discharged and now on the reserve, display in their speech and conduct the benefits of their school training.

The class-rooms are properly furnished and equipped, except for a few articles of stationery, for which a requisition has been forwarded. They are well arranged, clean and comfortable, and quite large enough for the present attendance.

The clothing of the children is comfortable and in every way suitable. Each of the girls has, in addition to others, one dress for winter wear of serge, manufactured in school from wool purchased from the Indians and others. On the same loom on which the cloth is woven, carpets are also made from waste pieces of material and old garments, cut into strips and sewed together, which wear well and add to the comfort and furnishing of the different rooms. The girls in attendance are all between seven and thirteen years. They are clever in their industries for their age, and if they were more numerous and a little older, much more such useful training as that above described could be imparted.

A vegetable garden, as well as an attractive flower garden, is cultivated in connection with the school.

The products of the farm and garden, which are a substantial help toward supplying the tables, are for the nine months preceding the inspection, as follows : two thousand five hundred pounds of beef, one thousand and seventy-eight pounds butter, three hundred and twenty dozen of eggs, three hundred and ten bushels potatoes, four bushels carrots, four bushels onions, three bushels turnips, two bushels beets, one hundred heads of cabbage, and twenty heads of cauliflowers, besides a quantity of green vegetables, pease, beans, cucumbers, radishes, lettuce, &c. The value of these products is included in the financial statement furnished to the department on June 30.

The buildings, which are still comparatively new, are in a good state of repair. The main building, however, requires painting both for appearance and for preservation.

BIG RIVER DAY SCHOOL.

This school was inspected on November 24. James Isbister was in charge as teacher. It is on Kenemotayoo's reserve.

There were six pupils present at inspection, which is the total number enrolled, and is the total number in the neighbourhood of the school. Unfortunately, when the Indians settled on this reserve five years ago, they were allowed to locate in two distinct groups six miles apart, so that the day school, situated in the centre of one group, serves the needs of only half the band.

The school had at the above date been in operation for three years, yet the results were such as might have been attained in six months or less. The pupils knew but a few words of English, very little about numbers, and nothing else.

The school-building is of suitable dimensions, new and comfortable. There is a comfortable teacher's residence at hand, built by the Church Missionary Society. Both buildings are of logs, and are shingled and properly finished. The school is wainscotted and ceiled with V-joint.

AHTAHKAKOOP'S DAY SCHOOL.

This school was closed at the time of my visit, November 23, but was reopened a few days after.

The building is a particularly good one, well lighted, clean, and healthful.

The school material was sufficient, but in bad order and carelessly kept.

STURGEON LAKE DAY SCHOOL.

This school was inspected on December 2. The teacher is Robert Bear, a member of John Smith's band, who had charge of a school for some years in the Pas agency.

There were only four children present, and the average attendance for twelve months was only three, although there are eleven of school age within a mile and a half of the school. Such is the indifference of the Indians of this part of the reserve towards education. So irregular is the attendance that practically nothing is accomplished.

A new school has been built at a point six miles west, which will accommodate another section of the band who, it is hoped, will avail themselves of its benefits. The present school, which is outside the borders of the reserve, will be closed.

THE WAHSPATON DAY SCHOOL (SIOUX).

This school was inspected on December 23. It is conducted by Miss Baker, a missionary-teacher of the Presbyterian Church.

There are eleven pupils enrolled, eight present at inspection, and an average attendance for twelve months of five.

The Sioux show a fair appreciation of the benefits of the school, and if the attendance is not as regular as might be desired, it is largely because the Indians are frequently obliged to leave the reserve in pursuit of a livelihood.

Discipline in school is not exact, but the methods of instruction are fairly good and the progress satisfactory.

MISTAWASIS DAY SCHOOL.

This school was inspected on December 10. Mrs. Moore, wife of the resident missionary, who is in charge of the school, has experience in public school teaching as well as special training for the work.

There were present at examination, nine pupils ; enrolled, fourteen ; average for twelve months, eight.

The pupils are mostly young ; several are but slightly over six years. A few live a distance of two miles from the school, but these are boarded during the week at the mission gratis. It is in this way that for some years past a tolerable attendance has been maintained. Usually from six to seven children are kept in this way and have comfortable quarters and very favourable surroundings.

The pupils enrolled are classified as follows :—

	Pupils
Standard I.	9
" II.	3
" III.	1
" IV.	1

The instruction is efficient, and the pupils are making satisfactory progress.

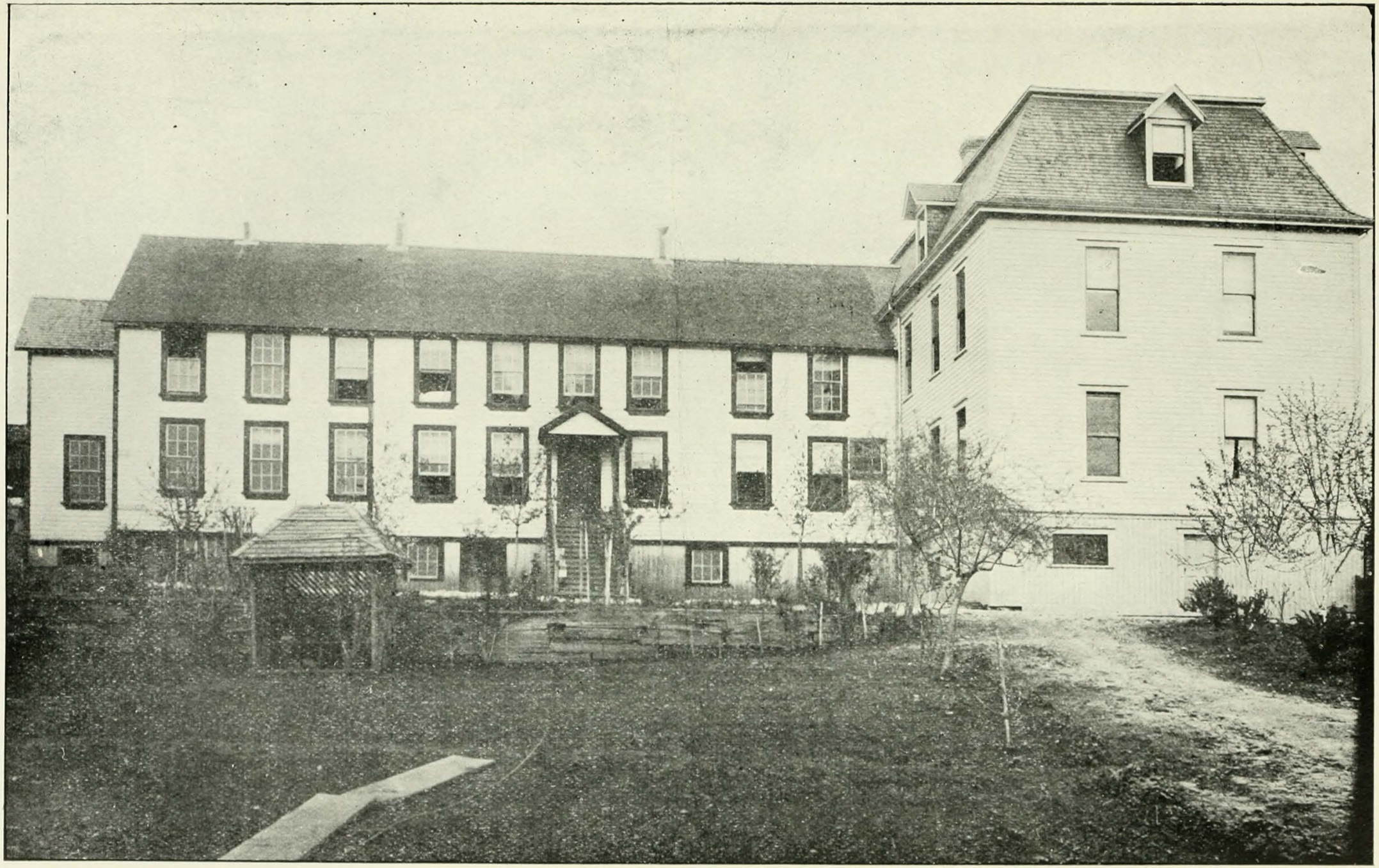
A porch has been constructed over the school entrance, adding to the comfort of the building, which in other respects also is in a good state of repair.

WHITEFISH LAKE DAY SCHOOL.

This school was inspected on May 18. The teacher, Miss J. S. R. Batty, has had some special training in primary and kindergarten work.

The attendance is as follows : present at inspection, seven ; enrolled during quarter, thirteen ; average for nine months ended March 31, including 145 school days, nine.

Seven pupils, including two of the most advanced, have within the past few months been removed to the industrial school at Red Deer. The parents of one of these pupils, Adelaine Mahkokis, a girl of thirteen years, showed me a letter received from her a short time before. It was written in a good hand and was expressed in good English.



SQUAMISH MISSION BOARDING SCHOOL, NEAR VANCOUVER, B.C. [441]

The pupils enrolled for the June quarter were classified as follows :—

	Pupils.
Standard I.	11
" II.	1
" III.	1

The teacher's methods are well adapted to the age and requirements of her pupils, the majority of whom are beginners. Practical language exercises are employed, and kindergarten, singing and physical exercises are interspersed with the regular work.

The school-building is old and required some repairs, which the agent was arranging to have made.

GOODFISH LAKE DAY SCHOOL.

This school was inspected on May 20.

Mr. Vincent Smith is the teacher and is frequently assisted by Mrs. Smith.

The following notes were made regarding the attendance : present at inspection, fourteen; enrolled during quarter, twenty; average attendance for nine months, including ninety-nine days of school, eleven. The school was closed for nearly three months during the winter, on account of the prevalence of small-pox on the reserve.

All the pupils present were in standard I, except two, who were in standard II.

The progress of the classes is not satisfactory, considering the rather regular attendance that has been maintained.

RED PHEASANT'S DAY SCHOOL.

Date of inspection, July 8, 1904.

Mrs. Jefferson, wife of Farmer Jefferson, is the teacher.

There were present five boys and five girls; total, ten. Enrolled for current quarter, nine boys and six girls; total, fifteen. Average attendance for twelve months, including two hundred and twenty-four days of school, seven.

The pupils are graded as follows :—

	Present.	Enrolled.
Standard I.	6	11
" II	2	2
" III	2	2

A few of the most advanced pupils have been removed to the industrial school.

The teacher employs a variety of simple but useful methods which serve to sustain interest and to secure progress. The pupils are attentive and engage in the class exercises with zeal. Two boys in standard III read with fair understanding, work practical problems involving all the elementary processes in numbers, have some knowledge of local geography, recognize the time on the dial of a clock, and can count up to $25 in paper money or coin of any denomination.

The pupils are clean, well-behaved, obedient, a little noisy, but not insubordinate, nicely dressed with galatea, cut out by the teacher and made up by the children's mothers.

A comfortable noon meal is regularly served for the children at the farmhouse kitchen.

POUNDMAKER'S DAY SCHOOL.

Date of inspection, June 30, 1904.

Miss Regina Arcand is the teacher.

The pupils present were three boys and one girl; total, four. Enrolled, six boys and two girls; total, eight. Average for twelve months, one hundred and ninety-five days, 3·4.

Of the pupils present three were in standard I and one was in standard II.

There is an apparent lack of interest in the work of late on the part of the teacher, which has resulted in indifferent progress, and partially accounts for a lack of confidence in the school on the part of the Indians and a decreased attendance.

The pupils are clean, their conduct good, and punctuality fair. The school material is ample and securely kept. The interior of the building is in good condition and repair, the walls freshly whitened, the floors and windows clean, and the furniture in good order.

LITTLE PINE'S DAY SCHOOL.

Date of inspection, June 30.

C. T. Desmarais is the teacher.

There were present three boys and two girls; total, five. Enrolled, eight boys and six girls; total, fourteen. Average for twelve months, seven.

Of the pupils present, four were in standard I, and one was in standard II.

The indications of progress are very slight. The pupils scarcely understand the simplest English expressions. A few months in school diligently employed should be sufficient to accomplish all the results that are visible here.

The school-building is in good repair, comfortable and clean, except for the windows, which were a little dingy.

THUNDERCHILD'S DAY SCHOOL.

Mr. G. F. Gibbs has been in charge of this school for the past year.

The school was closed at the date of my visit on account of no pupils attending. The register of attendance showed as follows : enrolled during June quarter, seven; average for twelve months ended June 30, one hundred and six days of school, 2·4.

The teacher has excellent qualifications and would be very useful here if the children would attend. The Indians, however, do not appear to recognize any authority or influence in this matter. There is utter indifference among them as to the benefits to be derived from the school.

DAY SCHOOL ON THE STONY RESERVE, BATTLEFORD.

This school was closed for the holidays at the date of my visit, July 8.

The average attendance for the June quarter was a little less than two pupils daily. There are eight children of school age on the reserve, but in order to secure the attendance of these it requires more than mere scholarship or ability to teach; it requires great diligence and devotion to the work. The agent's influence should also be constantly felt.

Mr. Leffler, who took charge of the school after the holidays, is likely to be a valuable example to day-school teachers. He has against great difficulties succeeded in gathering in a few of the children, and with them two or three youths quite over school age who never before attended school. There is reason to hope that his success will continue and increase and that he will become a very useful man among these people.

GENERAL REMARKS.

The remainder of the day schools of this inspectorate were either closed at the time of my inspection of the reserves on which they are located or were not visited by me during the year.

I have, &c.,

W. J. CHISHOLM,
Inspector of Indian Agencies.

NORTHWEST TERRITORIES,
QU'APPELLE INSPECTORATE,
FORT QU'APPELLE, October 22, 1904.

The Honourable
The Superintendent General of Indian Affairs,
Ottawa.

SIR,—I have the honour to submit herewith the following report of my inspection of boarding and day schools in this inspectorate for the months of April, May and June.

WHITE BEAR'S DAY SCHOOL.

This school is situated on White Bear's reserve, Moose Mountain agency, and was inspected by me on April 14, 1904. There were twelve pupils present, six boys and six girls. There are twenty children enrolled, being about ninety per cent of the total number of school children on the reserve. The classification was :—

	Pupils.
Standard I	10
" II	10
	20

Most of the children were, as will be noticed from their grading, not very far advanced.

The punctuality was only fair, but the class organization was good.

The children for the most part were neat and clean. Soap and water are kept on a stand and the children wash themselves on their arrival.

The building, which is frame, 20 x 30 feet, was neat and tidy. It is heated by stoves.

MUSCOWEQUAN'S BOARDING SCHOOL.

This school is situated on Muscowequan's reserve, Touchwood Hills agency. I visited this school on June 10, last.

The staff consists of the principal, Rev. Father Magnan, four sisters and two lay brothers.

There were thirty pupils in the class-room at the time of my inspection, seventeen boys and thirteen girls, and they were graded as follows :—

	Pupils.
Standard I	11
" II	9
" III	7
" IV	3
	30

Rev. Sister Valade is the teacher in charge, and she is to be congratulated on the way in which she has brought the children on. Every boy and girl speaks out and can be heard across the room.

The school presented a neat and well-kept appearance and the ventilation was good. The dormitories were clean and well ventilated. The clothes of the children were neatly packed away in cupboards in these rooms.

In connection with the school the principal has started a farm, which was really a model. He had under crop this year thirty-six acres of grain and three acres of vegetables. The whole farm is surrounded by a wire fence.

The following is a list of the live stock on hand belonging to the school : fifty-two head of cattle ; seven horses ; seven pigs ; and three hundred hens.

I found the interior of the building from cellar to garret scrupulously clean. The surroundings were well kept and presented a neat appearance.

I visited the stables and found everything in the best of order.

Both the boys and girls at this school receive a good training and the department is fortunate in having such an up-to-date principal and staff.

GORDON'S BOARDING SCHOOL.

I inspected this school on June 21, 1904. The school is under the auspices of the Church of England.

The staff consists of Mr. and Mrs. Williams, principal and matron, a labourer and a general servant.

I found the interior of the building neat and clean, the dormitories well ventilated and the children's clothing stored away in proper order. In fact everything in connection with the interior management was all that could be desired. The children were well and comfortably dressed and were neat and clean and looked healthy.

The premises surrounding the school were well kept. The stables are made of logs and were in good order.

There were twenty-four children in the class-room at the time of my inspection and they were graded as follows :—

	Pupils.
Standard I.	5
" II.	3
" III.	8
" IV.	7
" V.	1
	24

I heard the children go through their different exercises. Many of them were quite clever, but I found it difficult to hear them read, as they all speak in a very low tone.

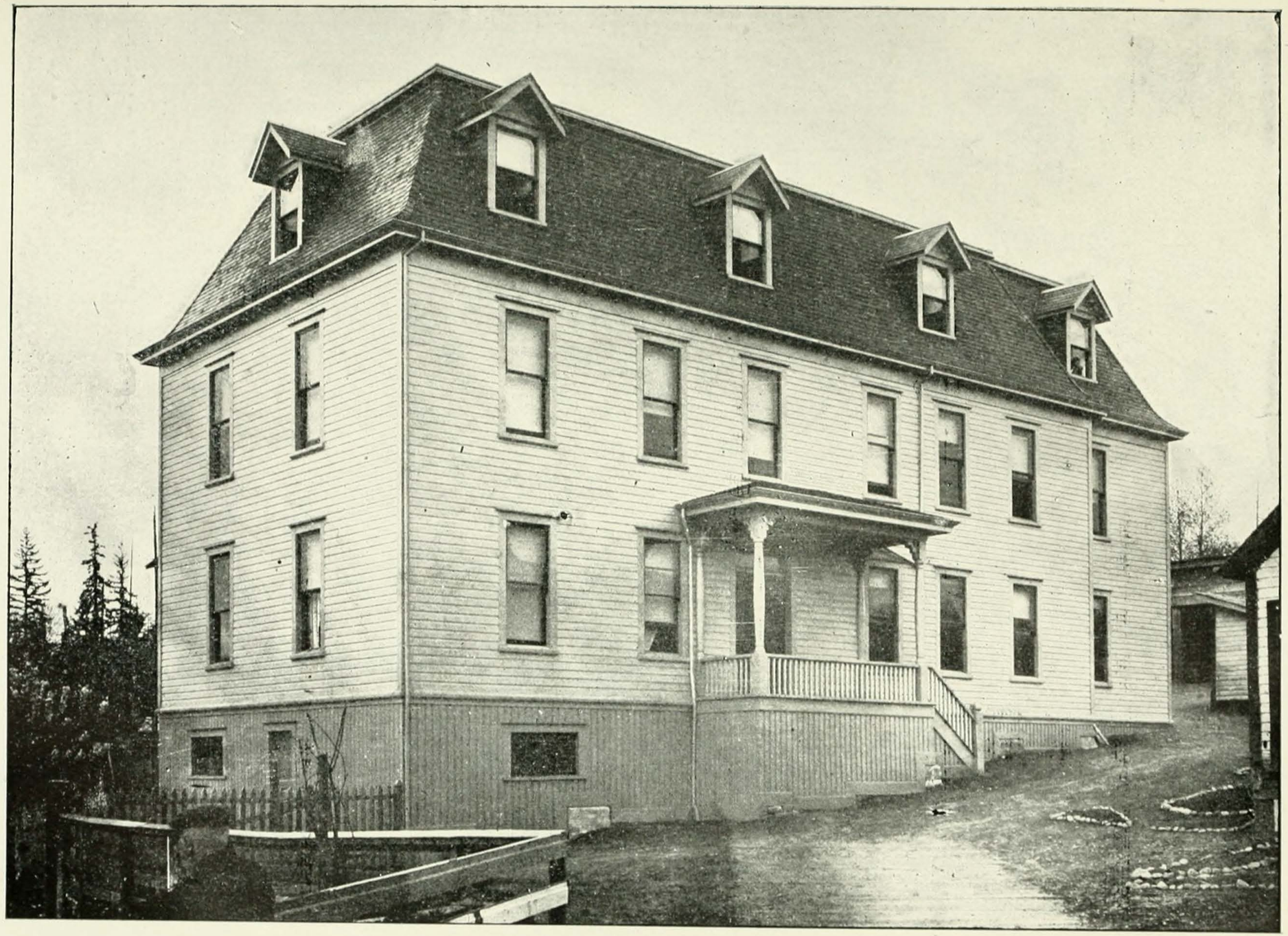
The fire-protection of the school is good and the apparatus supplied by the department was in proper place.

Mr. and Mrs. Williams are untiring in their efforts and they have made a success of this school.

I have, &c.,

W. M. GRAHAM,

Inspector of Indian Agencies.



Squamish Mission Boarding School, near Vancouver, B.C.

PART II

TABULAR STATEMENTS

FINANCIAL STATEMENTS

Showing Receipts and Expenditure of the various Boarding and Industrial Schools, for the year ended June 30, 1904.

FORT WILLIAM ORPHANAGE, ONT.

(Roman Catholic.)

	$ cts.	$ cts.
Receipts.		
Government grant per capita		550 00
" for buildings and repairs		1,000 00
Contributed from other sources		2,478 00
Value of clothing contributed		60 00
Total receipts		4,088 00
Expenditure.		
Deficit, June 30, 1903	3,626 81	
Salaries	100 00	
Food	1,530 21	
Clothing	273 30	
Fuel and light	175 60	
Buildings and repairs	1,331 46	
Equipment and furniture	250 00	
Miscellaneous	570 50	
Total expenditure	7,857 88	
Excess of expenditure over receipts		3,769 88
	7,857 88	7,857 88

CECILIA JEFFREY BOARDING SCHOOL, ONT.

(Presbyterian.)

		$ cts.	$ cts.
Receipts.			
Balance on hand, June 30, 1903			65 38
Government grant per capita			1,161 60
Contributed by the Woman's Foreign Missionary Society			
In cash for salaries	$1,310 35		
In cash for other expenditure	2,079 53		
In clothing valued at	500 00		3,889 88
Total receipts			5,116 86
Expenditure.			
Salaries		1,310 35	
Food and miscellaneous		1,474 68	
Clothing		690 00	
Fuel		80 00	
Light		28 00	
Buildings		634 00	
Equipment and furniture		707 53	
Total expenditure		4,924 56	
Balance on hand, June 30, 1904		192 30	
		5,116 86	5,116

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904—*Con.*

NORWAY HOUSE BOARDING SCHOOL, MAN.

(Methodist.)

RECEIPTS.	$ cts.	$ cts.
Cash on hand, June 30, 1903		16 05
Goods " "		297 73
Government grant, per capita		3,234 59
From Missionary Society		2,265 41
Government grant for enlargement of school		800 00
Donations of clothing		125 00
EXPENDITURE.		
Salaries	1,565 00	
Groceries	1,800 22	
Dry goods, boots and shoes	931 50	
Hardware	648 07	
Drugs and stationery	41 41	
Live stock	34 30	
Lumber and shingles	932 97	
Freight and transportation	631 01	
Equipment and furniture	31 75	
Miscellaneous	106 50	
Cash credit not paid on June 30, 1903	16 05	
	6,738 78	6,738 78

PINE CREEK BOARDING SCHOOL, MAN.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant		4,140 00
EXPENDITURE.		
Food	2,400 00	
Salaries	500 00	
Clothing	854 00	
Fuel and light	190 00	
Repairs	300 00	
Miscellaneous	200 00	
	4,444 00	
Excess of expenditure over receipts		304 00
	4,444 00	4,444 00

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904—*Con.*

PORTAGE-LA-PRAIRIE BOARDING SCHOOL, MAN.

(Presbyterian.)

RECEIPTS.	$ cts.	$ cts.
Balance on hand, June 30, 1903		69 11
Government grant, per capita		1,716 00
Contributions from other sources		15 00
Value of clothing contributed		350 00
Contributions towards salaries		900 00
Total receipts		3,050 11
EXPENDITURE.		
Salaries	900 00	
Food	1,051 20	
Clothing	403 45	
Fuel and light	360 10	
Buildings and repairs	154 28	
Equipment and furniture	45 60	
Stationery	17 36	
Miscellaneous	112 15	
Total expenditure	3,044 14	
Balance, June 30, 1904	5 97	
	3,050 11	3,050 11

RAT PORTAGE BOARDING SCHOOL, MAN.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Governmnt grant		2,160 00
EXPENDITURE.		
Salaries	700 00	
Provisions	1,157 41	
Clothing	214 76	
Equipment	176 58	
Miscellaneous	133 35	
Total expenditure	2,382 10	
Deficit, June 30, 1904. Paid by mission		222 10
	2,382 10	2,382 10

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904—*Con.*

BIRTLE BOARDING SCHOOL, MAN.

(Presbyterian.)

RECEIPTS.	$ cts.	$ cts.
Balance on hand, June 30, 1903		121 10
Government grant, per capita		2,646 60
" " for water supply		991 11
" " for lighting		75 00
Value of clothing donated		850 00
Salaries		1,728 05
Grant from W. F. M. S. to replace barn, &c		680 50
From other sources		247 00
Total receipts		7,339 36
EXPENDITURE.		
Salaries	1,745 50	
Food	1,705 20	
Clothing	975 65	
Fuel and light	823 19	
Building and repairs	609 10	
Equipment	568 35	
Water supply	991 11	
Miscellaneous	181 25	
Total expenditure	7,599 35	
Excess of expenditure over receipts		259 99
	7,599 35	7,599 35

BLACKFOOT BOARDING SCHOOLS, N.W.T.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant		2,681 40
Other sources (the church, &c)		2,105 40
Value of clothing, in bales		800 00
Total receipts		5,586 80
EXPENDITURE.		
Balance July 1, 1903	281 54	
Salaries	1,178 25	
Food	1,638 07	
Clothing	844 60	
Fuel and light	308 75	
Repairs	153 59	
Furnishing and equipment	144 45	
Miscellaneous	963 62	
Total expenditure	5,512 87	
Balance on hand, June 30, 1904	73 93	
	5,586 80	5,586 80

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904—*Con.*

BLOOD BOARDING SCHOOL, N.W.T.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant		3,234 69
Other sources (the church, &c.)		2,149 40
Value of clothing, &c., in bales		900 00
Total receipts		6,284 09
EXPENDITURE.		
Balance, July 1, 1903	372 54	
Salaries	1,618 96	
Food	2,082 89	
Clothing	1,068 35	
Fuel and light	336 90	
Buildings and repairs	322 44	
Furnishing and equipment	458 95	
Miscellaneous	420 06	
Total expenditure	6,681 09	
Excess of expenditure over receipts		397 00
	6,681 09	6,681 09

BLOOD BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant		1,762 20
" for buildings, repairs, &c		280 00
Contributions from other sources		100 00
Value of clothing donated		100 00
Total receipts		2,242 20
EXPENDITURE.		
Salaries	850 00	
Fuel and light	350 00	
Clothing	400 00	
Food	900 00	
Equipment	300 00	
Buildings and repairs	350 00	
Total expenditure	3,150 00	
Excess of expenditure over receipts		907 80
	3,150 00	3,150 00

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904—*Con.*

BLUE QUILL'S BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		2,269 80
Contributions from other sources		615 36
Value of clothing contributed		50 00
Total receipts		2,935 16
EXPENDITURE.		
Deficit, June 30, 1903	375 11	
Salaries	612 33	
Food	902 43	
Clothing	516 59	
Fuel and light	47 73	
Buildings and repairs	91 83	
Equipment and furniture	83 99	
Miscellaneous	225 69	
Freight and express	288 56	
Total expenditure	3,144 26	
Excess of expenditure over receipts		209 10
	3,144 26	3,144 26

CROWFOOT BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		1,294 00
Church grant		1,200 00
From other sources		300 00
Total receipts		2,794 00
EXPENDITURE.		
Deficit, June 30, 1903	104 00	
Salaries	950 00	
Food	950 00	
Clothing	450 00	
Fuel and light	250 00	
Buildings and repairs	150 00	
Equipment and furniture	40 00	
Miscellaneous	75 00	
Total expenditure	2,969 00	
Excess of expenditure over receipts		175 00
	2,969 00	2,969 00

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

CROWSTAND BOARDING SCHOOL, N.W.T.

(Presbyterian.)

RECEIPTS.	$ cts.	$ cts.
Balance on hand, June 30, 1903		230 98
Government grant, per capita		2,801 40
Foreign mission committee grant		2,543 75
Clothing contributed		750 00
Proceeds from sale of stock		150 00
Produce		217 10
Other sources		235 90
Total receipts		6,929 13
EXPENDITURE.		
Salaries	2,266 75	
Food	1,063 81	
Fuel and light	304 20	
Clothing	953 65	
Buildings and repairs	749 65	
Equipment	828 85	
Fodder	210 75	
Extra labour	157 45	
Miscellaneous	358 05	
Total expenditure	6,893 16	
Balance on hand, June 30, 1904	35 97	
	6,929 13	6,929 13

COWESSESS BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		2,834 40
Received from other sources		729 43
Total receipts		3,563 83
EXPENDITURE.		
Salaries	940 95	
Food	776 79	
Clothing	515 52	
Fuel and light	114 40	
Buildings and repairs	232 52	
Equipment and furniture	834 27	
Miscellaneous	817 75	
Total expenditure	4,232 20	
Excess of expenditure over receipts		668 37
	4,232 20	4,232 20

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

DUCK LAKE BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		9,876 58
Nursing and boarding a boy from reserve		14 00
Total receipts		9,880 58
EXPENDITURE.		
Salaries	2,232 96	
Provisions	2,416 78	
Clothing	184 40	
Fuel and light	213 00	
Medical account	16 99	
Freight and express	192 91	
Farm	1,109 03	
Miscellaneous	3,741 11	
House furniture	58 00	
House fixtures	7 60	
Total expenditure	10,676 93	
Excess of expenditure over receipts		796 35
	10,676 93	10,676 93

EMMANUEL COLLEGE, N.W.T.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		4,026 80
" " for special repairs		756 02
Proceeds of sales		187 01
Donations		232 60
From other sources		58 87
Divinity professorship		500 00
C. M. S. for salary		250 00
Value of clothing from Woman's Auxiliary		634 08
Total receipts		6,645 38
EXPENDITURE.		
Clothing	1,292 86	
Provisions	1,876 32	
Salaries	2,127 13	
Fuel and light	433 10	
O. H. help	282 00	
Equipment	518 25	
Repairs	551 12	
Miscellaneous	723 81	
Old accounts	686 62	
Total expenditure	8,491 21	
Excess of expenditure over receipts		1,845 83
	8,491 21	8,491 21

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

ERMINESKIN'S BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Balance on hand, June 30, 1903		12 45
Government grant, per capita		3,315 00
From other sources		80 45
Total receipts		3,407 90
EXPENDITURE.		
Salaries	950 00	
Food	1,867 70	
Clothing	315 74	
Fuel and light	200 50	
Total expenditure	3,333 94	
Balance, June 30, 1904	73 96	
	3,407 90	3,407 90

FILE HILLS BOARDING SCHOOL, N.W.T.

(Presbyterian.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		980 40
" " for furnace		229 00
W. F. M. S. grant for stock, implements, &c		715 00
" " salaries		1,237 30
" " buildings		961 55
" " freight on beds		25 31
Principal's board		104 00
Non-treaty children's board		77 00
From various sources		165 50
Total receipts		4,495 06
EXPENDITURE.		
Deficit, June 30, 1903	702 83	
" not entered in last statement	4 75	
Buildings	440 21	
Furnace	229 00	
Paint	225 00	
Fuel and light	188 75	
General expense	485 61	
Stock, implements, &c	638 85	
Unexpended balance for stock, &c	76 15	
Food	777 81	
Salaries	1,284 30	
Furnishing account for children	109 11	
" " house	111 73	
Total expenditure	5,274 10	
Excess of expenditure over receipts		779 04
	5,274 10	5,274 10

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

HOLY ANGELS BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		2,758 00
EXPENDITURE.		
Salaries	1,000 00	
Food	1,862 00	
Clothing	1,972 00	
Fuel	400 00	
Lighting	40 00	
Total expenditure	5,274 00	
Excess of expenditure over receipts		2,516 00
		5,274 00

LESSER SLAVE LAKE BOARDING SCHOOL, N.W.T.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant		805 20
Woman's Auxilliary grant towards matron's and assistant matron's salary		250 00
Total receipts		1,055 20
EXPENDITURE.		
Total expenditure	1,200 00	
Excess of expenditure over receipts		144 80
	1,200 00	1,200 00

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

LESSER SLAVE LAKE BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

	$ cts.	$ cts.
RECEIPTS.		
Government grant, per capita		2,880 00
EXPENDITURE.		
Salaries	1,500 00	
Food	3,359 80	
Clothing	582 24	
Light	12 00	
Fuel	400 00	
Miscellaneous	7 00	
Total expenditure	5,861 04	
Excess of expenditure over receipts		2,981 04
	5,861 04	5,861 04

MUSCOWEQUAN'S BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

	$ cts.	$ cts.
RECEIPTS.		
Government grant, per capita		2,160 00
From the farm		136 00
Total receipts		2,296 00
EXPENDITURE.		
Food	1,430 70	
Clothing	782 85	
Hardware	145 20	
Fuel and light	72 40	
Wages	449 65	
Implements	92 55	
Lumber	183 50	
Repairs	56 15	
Freight	108 35	
Sundries	51 25	
Total expenditure	3,372 60	
Excess of expenditure over receipts		1,076 60
	3,372 60	3,372 60

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

ONION LAKE BOARDING SCHOOL, N.W.T.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		1,107 00
" " for repairs		150 92
Salary of missionary, from Church Missionary Society		600 00
Salary of two of the staff, from Woman's Auxiliary of Canada		300 00
Grant from Education Department, N.W.T		75 00
Donations of clothing from the Woman's Auxiliary of Canada		300 00
From private funds		2,155 33
Total receipts		4,688 25
EXPENDITURE.		
Provisions	1,034 50	
Clothing	690 00	
Salaries	1,443 75	
Domestic service	100 00	
Freight	190 00	
Fuel and light	204 00	
Buildings and repairs—Material	946 98	
" " Wages	160 00	
Miscellaneous	219 00	
Total expenditure	4,988 23	
Excess of expenditure over receipts		299 98
	4,988 23	4,988 23

ONION LAKE BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Amount contributed by government, per capita grant	3,007 80	
Pupil boarders	542 75	
Farm and garden	544 00	
From other sources	657 80	
Gifts	23 00	
Total receipts	4,775 35	
EXPENDITURE.		
Deficit, June 30, 1903		1,284 50
Wages		195 40
Food		1,873 00
Clothing		743 20
Fuel and light		147 50
Salaries and expenses of staff		992 50
Sidewalks		55 0
Miscellaneous		481 70
Deficit, June 30, 1904	997 45	
	5,772 80	5,772 80

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

PEIGAN BOARDING SCHOOL, N.W.T.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant		1,635 00
Other sources (the church, &c)		1,962 80
Value of clothing in bales		450 00
Total receipts		4,047 80
EXPENDITURE.		
Balance, July 1, 1903	197 09	
Salaries	990 26	
Food	1,255 00	
Clothing	479 85	
Fuel and light	178 99	
Repairs	79 18	
Furnishing and equipment	42 04	
Miscellaneous	820 59	
Total expenditure	4,043 05	
Balance on hand, June 30, 1904	4 75	
	4,047 80	4,047 80

PEIGAN BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		1,393 20
Donations		435 00
Total receipts		1,828 20
EXPENDITURE.		
Deficit, June 30, 1903	425 72	
Salaries	650 00	
Food	1,213 34	
Clothing	320 17	
Fuel and light	240 30	
Buildings and repairs	127 30	
Equipment and furniture	94 27	
Miscellaneous	60 65	
	3,131 75	
Excess of expenditure over receipts		1,303 55
	3,131 75	3,131 75

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1094.—*Con.*

ROUND LAKE BOARDING SCHOOL.

(Presbyterian.)

RECEIPTS.	$ cts.	$ cts.
Government grant		1,776 00
Church grant for salaries		1,650 00
W. F. M. Society clothing		500 00
" " for improvements		743 00
Other contributions		300 00
EXPENDITURE.		
Salaries	2,070 00	
Food	900 00	
Clothing	300 00	
Fuel and light	400 00	
Improvements	1,043 00	
Miscellaneous	256 00	
	4,969 00	4,969 00

SARCEE BOARDING SCHOOL, N.W.T.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant		946 80
Other sources (the church, &c.)		1,485 83
Value of clothing in bales		400 00
Total receipts		2,832 63
EXPENDITURE.		
Balance, July 1, 1903	492 98	
Salaries	670 98	
Food	688 71	
Clothing	466 21	
Fuel and light	379 80	
Repairs	71 60	
Furnishing and equipment	76 95	
Miscellaneous	485 05	
Total expenditure	3,332 28	
Excess of expenditure over receipts		499 65
	3,332 28	3,332 28

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

SMOKY RIVER (ST. AUGUSTINE'S) BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

	$ cts.	$ cts.
RECEIPTS.		
Government grant, per capita		1,080 00
EXPENDITURE.		
Salaries	650 00	
Equipment	50 00	
Clothing	600 00	
Food	480 00	
Fuel and light	180 00	
Miscellaneous	150 00	
Total expenditure	2,110 00	
Excess of expenditure over receipts		1,030 00
	2,110 00	2,110 00

ST. ALBERT BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

	$ cts.	$ cts.
RECEIPTS.		
Government grant, per capita		4,818 60
EXPENDITURE.		
Wages of farmers	1,496 00	
" baker	360 00	
Food	927 00	
Clothing	342 00	
Fuel and light	115 00	
Buildings and repairs	202 00	
Miscellaneous	85 00	
Deficit, June 30, 1903	4,729 32	
Total expenditure	8,256 32	
Excess of expenditure over receipts		3,437 72
	8,256 32	8,256 32

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

THUNDERCHILDS BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant		1,234 00
From other sources		975 00
Value of clothing contributed		100 00
Total receipts		2,309 00
EXPENDITURE.		
Deficit, June 30, 1903	2,687 70	
Salaries	500 00	
Food	1,255 42	
Clothing	225 00	
Fuel and light	190 00	
Buildings and repairs	55 00	
Equipment	280 00	
Total expenditure	5,193 12	
Excess of expenditure over receipts		2,884 12
	5,193 12	5,193 19

WABISCOW LAKE BOARDING SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant		1,080 00
From other sources		100 00
Total receipts		1,180 00
EXPENDITURE.		
Salaries	700 00	
Food	500 00	
Fuel and light	100 00	
Miscellaneous	50 00	
Total expenditure	1,350 00	
Excess of expenditure over receipts		170 00
	1,350 00	1,350 00

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

WABISCOW LAKE (ST. JOHN'S) BOARDING SCHOOL, N.W.T.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		120 00
" " " September and December quarters		209 00
Grant from government of N.W.T		50 00
Contributions for general expenses		500 00
Grant from diocese to rebuild		500 00
From other sources for building		978 00
Grant for salaries, 1903-4		750 00
Total receipts		3,107 00
EXPENDITURE.		
Grant from N. W. government for teacher	50 00	
Gift	25 00	
Salary, Albert Peters	71 00	
Supplies	828 00	
Miscellaneous	238 00	
Owing to Hudson's Bay Co	300 00	
Cost of new building	1,320 50	
Total expenditure	2,832 50	
Balance on hand, June 30, 1904	274 50	
	3,107 00	3,107 00

AHOUSAHT BOARDING SCHOOL, B.C.

(Presbyterian.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		1,398 50
Other contributions		1,327 70
Value of clothing, &c., donated		300 00
Total receipts		3,026 20
EXPENDITURE.		
Salaries	1,200 70	
Food	600 82	
Clothing	450 00	
Fuel and light	110 75	
Buildings and repairs	26 50	
Equipment and furniture	358 95	
Miscellaneous	23 80	
Total expenditure	2,771 52	
Balance, cash on hand, June 30, 1904	254 68	
	3,026 20	3,026 20

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

ALBERNI BOARDING SCHOOL, B.C.

(Presbyterian.)

RECEIPTS.	$ cts.	$ cts.
Government grant		1,800 00
Grant from Presbyterian Church		1,910 00
" " " for building		1,600 00
" " " equipment		384 32
Clothing from " "		800 00
Other receipts		100 00
Total receipts		6,594 32
EXPENDITURE.		
Deficit, June 30, 1903	245 83	
Salaries	1,557 00	
Food	1,470 88	
Clothing	887 45	
Light	50 87	
Buildings and repairs	1,600 00	
Equipment and furniture	399 57	
Miscellaneous	764 87	
Cash on hand (special)	39 00	
Total expenditure	7,015 47	
Excess of expenditure over receipts		421 15
	7,015 47	7,015 47

ALERT BAY GIRLS' HOME, B.C.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		356 00
Church Missionary Society		192 00
From other sources		56 00
Total receipts		604 00
EXPENDITURE.		
Deficit, June 30, 1903	3 70	
Salaries	234 00	
Food	296 10	
Clothing	37 25	
Equipment	32 40	
Fuel and light	30 35	
Miscellaneous	24 27	
Total expenditure	658 07	
Excess of expenditure over receipts		54 07
	658 07	658 07

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904.—*Con.*

PORT SIMPSON BOYS' BOARDING SCHOOL, B.C.

(Methodist).

RECEIPTS.	$ cts.	$ cts.
Goverment grant 1903-4		550 00
Government grant, Sept. and Dec. quarters, 1903		300 00
Legacy		500 00
Methodist Missionary Society grant		500 00
Donations		81 00
Goods sold		12 50
Work of horse		18 85
Boys' work		5 00
Total receipts		1,967 35
EXPENDITURE.		
Deficit, June 30, 1903	260 79	
Matron's salary, 1902-3	273 65	
Matron's salary 1903-4	228 34	
Food	525 82	
Clothing	20 14	
Fuel and light	188 40	
Buildings and repairs	18 00	
Equipment and furniture	106 00	
Horse keep	12 20	
Medical bill	8 65	
Travelling expenses	2 50	
Freight and wharfage	56 10	
Postage	2 75	
Miscellaneous	7 50	
Total expenditure	1,710 84	
Balance on hand, June 30, 1904	256 51	
	1,967 35	1,967 35

PORT SIMPSON GIRLS' HOME, B.C.

(Methodist.)

RECEIPTS.	$ cts.	$ cts.
Balance on hand, June 30, 1904		23 57
Government grant, per capita		1,200 00
Woman's Missionary Society grant		3,095 50
Total receipts		4,319 07
EXPENDITURE.		
Salaries	1,500 00	
Food	1,323 48	
Clothing	359 36	
Fuel and light	492 75	
Buildings and repairs	160 82	
Equipment and furniture	140 77	
Miscellaneous	476 82	
Total expenditure	4,454 00	
Excess expenditure over receipts		134 93
	4,454 00	4,454 00

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

ST. MARY'S MISSION BOARDING SCHOOL, B.C.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		3,600 00
" " for addition to boys' building		2,300 00
Proceeds of farm and garden		1,920 00
Grant from mission		650 00
From other sources		845 00
Total receipts		9,315 00
EXPENDITURE.		
Deficit, June 30, 1903	130 50	
Salaries	1,560 00	
Food	3,400 00	
Clothing	245 00	
Fuel and light	200 00	
Buildings	3,600 00	
Equipment and furniture	150 00	
Miscellaneous	460 00	
Total expenditure	9,745 50	
Excess of expenditure over receipts		430 50
	9,745 50	9,745 50

SQUAMISH BOARDING SCHOOL, B.C.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		2,872 00
Receipts from sale of garden produce		110 00
" other sources		309 00
" church		300 00
Total receipts		3,582 00
EXPENDITURE.		
Insurance and taxes	98 00	
Buildings	209 50	
Stationery and books	110 35	
Food and clothing	2,715 00	
Garden seeds	30 65	
Boots and shoes	98 00	
Fuel and light	90 50	
Farm instructor's salary	240 00	
Total expenditure	3,592 00	
		10 00
Excess of expenditure over receipts	3,592 00	3,592 00

SESSIONAL PAPER No. 27

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904—*Con.*

YALE (ALL HALLOWS) BOARDING SCHOOL, B.C.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Cash on hand, June 30, 1903		16 17
Government grant, per capita		1,786 50
S. P. C. K. scholarship		240 00
" catechist's stipend		160 00
Donations		275 59
Sales of clothing and needlework		112 95
Proceeds of basket industry		23 45
Total receipts		2,614 66
EXPENDITURE.		
Housekeeping	1,440 00	
Laundry	180 00	
Travelling expenses	50 00	
Medicine	20 00	
Fuel and oil	107 96	
Books and stationery	49 00	
Head mistress' salary	300 00	
Catechist's stipend	160 00	
Garden	46 80	
Boots	15 05	
Freight and express	122 45	
Furniture	47 90	
Basket industry	19 75	
Sewing-machine	26 10	
Alterations and repairs	20 70	
Total expenditure	2,605 71	
Balance on hand, June 30, 1904	8 95	
	2,614 66	2,614 66

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904—*Con.*

MOHAWK INSTITUTE, ONT.

(Undenominational.)

RECEIPTS.	$ cts.	$ cts.
Receipts from industrial departments, sales of farm produce, &c		4,538 81
Government grant, per capita		4,927 05
Value of new buildings erected		5,907 03
Total receipts		15,372 89
EXPENDITURE.		
Salaries		3,129 82
Provisions		3,711 38
Clothing		1,054 60
Washing, heating, lighting		740 03
Repairs and insurance		291 02
Furniture, bedding and house sundries		289 65
Printing, postage and office expenses		24 75
Travelling expenses		1 95
Medical expenses		156 64
Sundries, school requisites, library, telephone, prizes, &c		194 89
Gross cost of maintenance and management		9,594 73
Materials and wages for industrial departments—		
Farm and garden	$ 3,707 74	
Workshops	6,526 10	10,233 84
Gross cost of institution		19,828 57
Excess of expenditure over receipts		4,455 68
	19,828 57	19,828 57

NOTE.—This school is conducted by the 'New England Company' and the government contributes $69 per capita for 91 pupils.

MOUNT ELGIN INDUSTRIAL INSTITUTE, ONT.

(Methodist.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		5,895 00
" " for repairs		2,500 00
Missionary society		210 00
Sale of live stock		11,527 98
Total receipts		20,132 98
EXPENDITURE.		
Salaries	3,759 81	
Food	1,652 56	
Clothing	570 51	
Fuel and light	464 14	
Buildings and repairs	3,428 80	
Equipment and furniture	463 10	
Miscellaneous	13,286 46	
Total expenditure	23,625 38	
Excess of expenditure over receipts		3,492 40
	23,625 38	23,625 38

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

SHINGWAUK HOME, ONT.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Amount contributed by government under per capita grant		3,725 00
" " " for repairs, &c		1,511 86
" " from other sources, England and Canada		4,315 77
Total receipts		9,552 63
EXPENDITURE.		
Defecit, June 30, 1903	1,075 23	
Salaries	2,695 04	
Food	2,548 40	
Clothing, boots, &c	541 25	
Fuel and light	1,199 93	
Buildings and repairs	596 86	
Equipment and furniture (paid partly by government and partly by school)	516 16	
Office expenses, insurance, &c	321 83	
Travelling expenses, children's amusements	114 93	
Hospital expenses, doctor, &c	203 18	
Pocket money	65 12	
Laundry expenses, &c	190 02	
Miscellaneous	69 10	
Total expenditure	10,137 05	
Loss on all trades	626 71	
Apparent gross deficit		1,211 13
	10,763 76	10,763 76
Gross deficit—		
Partially covered by stock	$ 436 38	
Actual cash deficit, June 30, 1904	774 75	
	$1,211 13	1,211 13

WIKWEMIKONG INDUSTRIAL SCHOOL, ONT.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Contributed by government under per capita grant		7,092 00
" from other sources		5,581 33
Total receipts		12,673 33
EXPENDITURE.		
Salaries	1,965 00	
Food	3,948 83	
Clothing	2,083 89	
Fuel and light	1,102 83	
Buildings and repairs	3,043 13	
Equipment and furniture	146 13	
Miscellaneous	383 52	
Total expenditure	12,673 33	12,673 33

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

BRANDON INDUSTRIAL SCHOOL, MAN.

(Methodist.)

RECEIPTS.	$ cts.	$ cts.
Balance on hand, June 30, 1903		53 23
Government grant, per capita, sent through Methodist Missionary Society		11,388 05
From Methodist Missionary Society		611 95
Interest and discount		17 80
Farm and live stock		125 81
Total receipts		12,196 84
EXPENDITURE.		
Salaries	4,403 50	
Provisions	2,425 32	
Clothing	2,021 66	
Fuel	1,075 31	
House equipment	736 36	
Transport of pupils	309 77	
Light	258 00	
House expenses	250 03	
Farm	174 33	
Farm equipment	152 87	
Office	138 50	
Games	56 85	
Extra labour	54 75	
Freight	40 63	
Repairs	36 45	
Travelling expenses	35 00	
School fees	21 50	
Telegrams	4 48	
Total expenditure	12,195 31	
Balance in bank, June 30, 1904	1 53	
	12,196 84	12,196 84

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

*ELKHORN INDUSTRIAL SCHOOL, MAN.

(Undenominational.)

RECEIPTS.	$ cts.	$ cts.
Government grant		15,764 27
Farm receipts		856 80
Sundry receipts cash		631 86
Total receipts		17,252 93
EXPENDITURE.		
Salaries	4,440 47	
Buildings and fixtures	1,437 00	
Stock and equipment	496 70	
Material and repairs	488 23	
Travelling expenses	415 20	
Fuel and light	2,517 81	
Miscellaneous	101 86	
Farm	806 24	
Dry goods and clothing	2,199 67	
Groceries and provisions	3,717 89	
Indian Department (cash receipts)	631 86	
Total expenditure	17,252 93	17,252 93

*NOTE.—All expenses in connection with this school are paid by the government.

*RUPERTS LAND INDUSTRIAL SCHOOL, MAN.

(Undenominational.)

EXPENDITURE.	$ cts.	$ cts.
Maintenance.		
Band	10 96	
Clothing	1,566 23	
Dispensary	871 23	
Fuel	1,902 89	
Games	64 95	
House expenses	359 99	
Light	527 86	
Office expenses	107 20	
Provisions	2,754 79	
Salaries	3,999 12	
School	8 10	
Travelling expenses	141 85	
		12,315 17
Other expenses.		
Fixtures	1,689 29	
House equipment	257 40	
Repairs	359 59	
Blacksmith-shop	49 68	
Carpenter-shop	16 70	
Farm	1,708 85	4,081 51
Total expenditure		16,396 68

*NOTE.—All expenses in connection with this school are paid by the government.

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

ST. BONIFACE INDUSTRIAL SCHOOL, MAN.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		7,799 57
Farm products, &c		714 63
Total receipts		8,514 20
EXPENDITURE.		
Deficit, June 30, 1903	328 52	
Food	2,363 87	
Clothing	663 91	
Fuel and light	825 64	
Equipment	109 21	
Salaries	3,226 95	
Miscellaneous	1,981 33	
Total expenditure	9,499 43	
Excess of expenditure over receipts		985 23
	9,499 43	9,499 43

BATTLEFORD INDUSTRIAL SCHOOL, N.W.T.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		11,737 71
" " for buildings, repairs, drugs, medical attendance, equipment, &c		1,212 56
Contributions from other sources		776 25
EXPENDITURE.		
Deficit, June 30, 1903	300 00	
Salaries	4,307 75	
Food	4,646 29	
Clothing	1,331 14	
Fuel and light	397 71	
Buildings and repairs	1,217 96	
Equipment and furnishing	846 59	
Miscellaneous	679 08	
	13,726 52	13,726 52

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

*CALGARY INDUSTRIAL SCHOOL, N.W.T.

(Undenominational.)

EXPENDITURE.	$ cts.	$ cts.
Salaries	2,636 34	
Food	1,660 68	
Clothing	535 81	
Furnishing	241 91	
Management	2,388 05	
Buildings	406 68	
		7,869 47

* NOTE.—All expenses in connection with this school are paid by the government.

QU'APPELLE INDUSTRIAL SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant		30,694 93
Contributed by government for doctor's salary		600 00
Amount of shop earnings, sales, &c		5,490 81
Total receipts		36,785 74
EXPENDITURE.		
Deficit, June 30, 1903	1,292 52	
Salaries	8,581 75	
Food	6,722 23	
Clothing	4,428 16	
Fuel and light	2,186 81	
Buildings and repairs	4,495 76	
Equipment and furniture	1,930 53	
Miscellaneous	8,442 92	
Total expenditure	38,080 68	
Excess of expenditure over receipts		1,294 94
	38,080 68	38,080 68

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

RED DEER INDUSTRIAL SCHOOL, N.W.T.

(Methodist.)

RECEIPTS.	$ cts.	$ cts.
Cash on hand, July 1, 1903		7 38
Government grant, per capita, sent through Methodist Missionary Society		7,398 16
Vouchers paid by department out of the per capita grant		845 16
Government grant for repairs		2,057 89
Received from Methodist Missionary Society		3,864 39
" " sundry sales, farm produce, &c		1,943 26
Total receipts		16,116 24
EXPENDITURE.		
Salaries	4,394 69	
Provisions	3,225 66	
Clothing	1,499 39	
Fuel and light	99 31	
Buildings and repairs	323 24	
Water and sewer system	1,058 33	
Travelling expenses	1,405 16	
Farm, general	1,492 13	
" live stock	1,869 75	
Equipment and furniture	1,050 20	
House and office expenses	558 54	
Miscellaneous	541 66	
Total expenditure	17,518 06	
Excess of expenditure over receipts		1,401 82
	17,518 06	17,518 06

REGINA INDUSTRIAL SCHOOL, N.W.T.

(Presbyterian.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		7,226 42
" " for coal		1,829 41
" " buildings and repairs		930 37
" " typewriter		93 40
" " separator		1,187 00
" " pupils' travelling expenses		469 50
Proceeds of farm and shops		895 20
Private subscriptions toward equipment		658 00
Miscellaneous		1,021 20
Note to cover bank overdraft		1,200 00
Additional overdraft		429 31
EXPENDITURE.		
Balance overdrawn, June 30, 1903	319 58	
Provisions	2,107 06	
Clothing	1,057 98	
Fuel and light	2,580 31	
House and kitchen equipment	159 66	
Buildings and repairs	1,281 23	
Salaries	4,040 74	
Machinery and equipment	2,198 61	
Typewriter	93 40	
Pupils' travelling expenses	469 50	
Miscellaneous	1,631 74	
	15,939 81	15,939 81
Unpaid accounts and salaries, June 30, 1904	12,763 07	

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

ST. JOSEPH'S INDUSTRIAL SCHOOL, N.W.T.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Cash on hand, June 30, 1903		325 31
Government grant, 1903-1904		9,013 33
" " due school for June quarter, 1904		580 95
" " for repairs		300 00
Farm produce and live stock sold		4,187 34
Total receipts		14,406 93
EXPENDITURE.		
Deficit, June 30, 1903	745 81	
Salaries	4,567 00	
Food	2,387 76	
Clothing	1,517 05	
Fuel and light	1,013 57	
Repairs	325 08	
Live stock purchased	2,580 30	
Farm	650 68	
Equipment and sundries	871 27	
Total expenditure	14,658 52	
Excess of expenditure over receipts		251 59
	14,658 52	14,658 52

ALERT BAY INDUSTRIAL SCHOOL, B.C.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		1,188 39
" " " June quarter, 1903		666 25
Church Missionary Society grant		480 00
Making capstan and ways		45 00
Board		32 00
Work in carpenter's shops		16 75
Balance		225 90
Total receipts		2,654 29
EXPENDITURE.		
Deficit, June 30, 1903	381 69	
Salaries	754 00	
Food	852 45	
Clothing	261 00	
Fuel and light	99 50	
Repairs	35 00	
Equipment	65 68	
Miscellaneous	157 15	
Total expenditure	2,606 47	
Balance on hand, June 30, 1904	47 82	
	2,654 29	2,654 29

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904—*Con.*

CLAYOQUOT (BISHOP CHRISTIE) INDUSTRIAL SCHOOL, B.C.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		6,321 25
" " special for water service		729 48
Contributions towards new buildings		825 40
" by way of clothing and provisions		60 00
Total receipts		7,936 13
EXPENDITURE.		
Deficit, June 30, 1903	52 62	
Salaries	2,136 75	
Food	1,996 00	
Clothing	773 94	
Fuel and light	24 00	
Buildings and repairs	1,665 07	
Equipment and furniture	995 84	
Insurance of buildings and furniture	190 00	
New water supply service	850 79	
Miscellaneous	171 37	
Total expenditure	8,856 38	
Excess of expenditure over receipts		920 25
	8,856 38	8,856 38

COQUALEETZA INDUSTRIAL INSTITUTE, B.C.

(Methodist.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		9,109 72
" " for operation performed on pupil for appendicitis		150 00
From private sources		75 00
Sales of farm produce, &c		2,030 59
Value of clothing contributed		50 00
EXPENDITURE.		
Salaries	3,502 65	
Food	2,602 36	
Clothing	1,369 50	
Fuel and light	316 45	
Buildings and repairs	792 51	
Equipment and furniture	648 54	
Medical expenses and drugs	380 85	
Installing acetylene gas plant	201 92	
Rent paid Methodist Missionary Society	390 00	
Miscellaneous	1,210 53	
	11,415 31	11,415 31

STATEMENT of Receipts and Expenditure for the year ended June 30, 1904—*Con.*

KAMLOOPS INDUSTRIAL SCHOOL, B.C.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Balance on hand, June 30, 1903		96 20
Government grant		6,489 15
From other sources		38 35
Total receipts		6,623 70
EXPENDITURE.		
Salaries	2,835 00	
Food	1,646 23	
Clothing	616 08	
Fuel and light	271 65	
Buildings and repairs	190 16	
Equipment and furniture	474 58	
Miscellaneous	549 17	
Total expenditure	6,582 87	
Balance on hand, June 30, 1904	40 83	
	6,623 70	6,623 70

KOOTENAY INDUSTRIAL SCHOOL, B.C.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		6,500 00
Farm produce sold		267 08
Total receipts		6,767 08
EXPENDITURE.		
Deficit, June 30, 1903	185 00	
Salaries	1,360 00	
Food	2,541 09	
Clothing	1,442 53	
Fuel and light	96 00	
Buildings and repairs	715 65	
Furniture	127 63	
Miscellaneous	413 75	
Total expenditure	6,881 65	
Excess of expenditure over receipts		114 57
	6,881 65	6,881 65

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

KUPER ISLAND INDUSTRIAL SCHOOL, B.C.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		6,500 00
Contributions from other sources		486 79
Total receipts		6,986 79
EXPENDITURE.		
Deficit, June 30, 1903	254 10	
Salaries	2,821 25	
Food	1,713 59	
Clothing	704 68	
Buildings and repairs	547 08	
Fuel and light	66 10	
Equipment and furniture	838 52	
Miscellaneous	301 60	
Total expenditure	7,246 92	
Excess of expenditure over receipts		260 13
	7,246 92	7,246 92

LYTTON INDUSTRIAL SCHOOL, B.C.

(Church ot England.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		1,557 86
Contributed from other sources		8,835 05
Total receipts		10,392 91
EXPENDITURE.		
Salaries	2,404 82	
Food	1,095 82	
Clothing	489 86	
Fuel and light	53 60	
Buildings and repairs	1,498 47	
Enquipment and furniture	410 67	
Miscellaneous	4,260 27	
Total expenditure	10,213 51	
Balance, June 30, 1904	179 40	
	10,392 91	10,392 91

STATEMENT of Receipts and Expenditure for the Year ended June 30, 1904—*Con.*

METLAKAHTLA INDUSTRIAL SCHOOL, B.C.

(Church of England.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		5,695 55
Produce sold		48 75
Board of G. W. Morrow		50 00
Work done by instructor and pupils		112 40
Post Office Department, for rent		10 00
Government grant for repairs		541 03
" " finishing girls' building		99 50
Total receipts		6,557 23
EXPENDITURE.		
Balance, June 30, 1903	702 74	
Salaries	1,883 36	
Food	2,512 44	
Clothing	546 04	
Fuel and light	501 15	
Buildings and repairs	73 46	
Equipment and furniture	206 78	
Labour and material for repairs, &c	541 03	
Finishing new building, girls' home	99 50	
Miscellaneous	276 62	
Total expenditure	7,343 12	
Excess of expenditure over receipts		785 89
	7,343 12	7,343 12

WILLIAMS LAKE INDUSTRIAL SCHOOL, B.C.

(Roman Catholic.)

RECEIPTS.	$ cts.	$ cts.
Government grant, per capita		5,185 86
Value of clothing contributed		10 00
Grant from corporation of O. M. I		700 00
Total receipts		5,895 86
EXPENDITURE		
Deficit, June 30, 1903	3,207 57	
Interest on $3,000 loan	150 00	
Salaries	2,360 00	
Food	2,231 72	
Clothing	759 00	
Light	87 66	
Buildings and repairs	36 70	
Equipment and furniture	121 73	
Miscellaneous	50 40	
Total expenditure	9,004 78	
Excess of expenditure over receipts		3,108 92
	9,004 78	9,004 78

SCHOOL

STATEMENT of Day Schools in the Dominion (from which Returns

School.	Reserve.	Agency.	Teacher.	Denomination.
ONTARIO.				
Alnwick	Alnwick	Alnwick	C. B. Oakley	Methodist
Back Settlement	Caradoc	Caradoc	Miss Isa Whitlock	Undenominational
Bear Creek	"	"	" Alma H. Norsworthy	"
Buzwah	Manitoulin Island.	Manitowaning	J. Koechmstedt	Roman Catholic
Cape Croker	Cape Croker	Cape Croker	Miss Jean Govenlock	Undenominational
Christian Island	Christian Island	Penetanguishene	Rev. W. Geo Evans	Methodist
Fort William (Boys)	Fort William	Port Arthur	Sister M. Ambrose	Roman Catholic. }
" " (Girls)	" "	" "	" " "	" " . }
French Bay	Saugeen	Saugeen	T. J. Wallace	Undenominational
Garden River (R. C.)	Garden River	Sault Ste. Marie	Rev. J. A. Drolet, S.J	Roman Catholic
" " (C. E.)	" "	" " "	Lucius F. Hardyman	Church of England
Georgina Island	Georgina Island	Georgina Island	Hugh L. Tweed	Methodist
Gibson	Watha	Parry Sound	Thomas Whitebeans.	"
Golden Lake	Golden Lake	Golden Lake	Miss Charlotte Casey	Roman Catholic
*Henvey Inlet.	Henvey Inlet	Parry Sound	" Adda McIntosh	Undenominational
†Hiawatha	Rice Lake	Rice Lake	" Agnes Crowley.	"
Kettle Point	Kettle Point	Sarnia	" Maude M. Erb.	"
Lake Helen	Red Rock	Port Arthur	Mrs. J. H. McKay	Roman Catholic
Mattawa	At Mattawa		Sister St. Gregory	" "
Michipicoten	Michipicoten	Sault Ste. Marie	Miss Katie O'Connor	" "
†Missanabie	At Missanabie		William Black	Undenominational
Mississagi River	Manitoulin Island.	Thessalon	Anastasia Brissette	Roman Catholic
Moraviantown	Moravian	Moravian	Miss Car. Mummery	Undenominational
Mud Lake	Mud Lake	Rice Lake	Alfred McCue	"
Muncey	Caradoc	Caradoc	John Case	Church of England
Naughton	Whitefish Lake	Manitowaning	J. A. Windsor	Methodist
New Credit	New Credit.	New Credit	Miss Mary G. Bogle	Undenominational
‡Nipissing	Nippissing	Parry Sound	Miss B. L. Marceau.	"
Oneida No. 2	Oneida	Caradoc	Levi Doxtator	Church of England
" No. 3	"	"	Mrs. C. A. Vollick	Methodist
Pic River	Pic River	Port Arthur	Moses Madwayosh	Roman Catholic
Port Elgin	Cape Croker	Cape Croker	Miss Ruby F. Ashcroft	Undenominational
Rama	Rama	Rama	Rev. John Lawrence	Methodist
River Settlement	Caradoc	Caradoc	Joseph Fisher	Undenominational
Ryerson	Parry Island	Parry Sound	J. E. Armour	"
Sagamook	Spanish River	Thessalon	Miss Elizabeth A. Lensch	Roman Catholic
Saugeen	Saugeen	Saugeen	Miss Martha Broadfoot	Undenominational
Scotch Settlement	"	"	John Burr	"
Serpent River	Serpent River	Thessalon	Miss J. DeLamorandière	Roman Catholic

* School closed during September quarter 1903. No teacher. †Indian children attend white school.
‡ School closed during the September and December quarters, 1903. No teacher.

SESSIONAL PAPER No. 27

STATEMENT.

have been received) for the Year ended June 30, 1904.

Appropriation for Salary or yearly grant.	From what Fund Paid.	Number on Roll.			Average attendance.	Standard.						School.
		Boys.	Girls.	Total.		I	II	III	IV	V	VI	
$ cts.												Ontario.
300 00	Band	14	13	27	12	12	5	6	4	....	....	Alnwick.
250 00	Band, $200 ; Vote, $50.	10	6	16	6	4	7	2	....	3	....	Back Settlement.
250 00	Band, $200 ; Vote, $50.	10	5	15	6	10	3	2	....	....	....	Bear Creek.
300 00	Vote	8	1	9	5	6	1	1	1	....	....	Buzwah.
300 00	"	13	11	24	14	12	6	1	5	....	....	Cape Croker.
300 00	Band	12	17	29	12	16	9	4	....	....	....	Christian Island.
600 00	Vote	15	....	15	6	5	6	4	....	....	....	Fort William (Boys).
		....	21	21	9	13	3	4	1	....	....	" " (Girls).
300 00	Band	9	14	23	12	17	4	1	1	....	....	French Bay.
600 00	Band, $300 ; Vote, $300	32	33	65	32	33	8	12	8	4	....	Garden River (R. C.).
300 00	Band	17	17	34	16	18	9	7	....	....	....	" " (C. E.).
300 00	Band, $150 ; Vote, $150	6	7	13	6	4	3	3	3	....	....	Georgina Island.
300 00	Vote	11	13	24	12	11	5	2	2	4	....	Gibson.
300 00	"	14	9	23	10	15	6	2	....	....	....	Golden Lake.
250 00	Band, $100 ; Vote, $150	7	9	16	8	9	1	2	....	1	....	Henvey Inlet.
100 00	Band	3	4	7	3	2	3	3	3	....	....	Hiawatha.
250 00	"	5	11	16	7	7	4	1	4	....	....	Kettle Point.
250 00	Vote	12	11	23	9	3	13	7	....	....	....	Lake Helen.
100 00	"	12	25	37	26	16	16	2	3	....	....	Mattawa.
300 00	"	7	4	11	7	6	2	3	....	....	....	Michipicoten.
.....	"	14	8	22	15	15	7	....	....	....	....	Missanabie.
250 00	"	15	6	21	6	17	3	..	1	....	....	Mississagi River.
350 00	Band	27	27	54	20	19	11	12	8	4	....	Moraviantown.
200 00	"	16	10	26	16	10	6	1	7	2	....	Mud Lake.
200 00	Vote	5	12	17	5	7	6	3	1	....	....	Muncey.
300 00	"	8	7	15	7	6	7	....	2	....	....	Naughton.
300 00	Band	15	14	29	14	10	12	1	3	3	....	New Credit.
250 00	"	11	15	26	15	18	5	2	1	....	....	Nipissing.
150 00	Vote	9	6	15	8	8	4	2	1	....	....	Oneida No. 2.
300 00	"	14	17	31	14	16	6	5	4	....	....	" No. 3.
250 00	"	13	2	15	4	4	6	5	....	....	....	Pic River.
300 00	Band	20	13	33	17	20	7	1	5	..	..	Port Elgin.
300 00	Band, $125 ; Vote, $175	14	25	39	18	14	7	7	4	5	2	Rama.
200 00	Band	15	11	26	9	11	2	9	3	1	..	River Settlement.
250 00	"	11	11	22	10	8	8	6	....	....	....	Ryerson.
250 00	Vote	27	13	40	24	27	10	3	....	....	...	Sagamook.
300 00	Band	14	10	24	12	13	5	6	....	....	....	Saugeen.
300 00	"	14	12	26	17	8	8	5	5	....	....	Scotch Settlement.
250 00	Vote	11	4	15	8	7	6	2	....	....	....	Serpent River.

Fees paid by department.

SCHOOL

STATEMENT of Day Schools in the Dominion (from which Returns

School.	Reserve.	Agency.	Teacher.	Denomination.
ONTARIO—*Concluded.*				
Shawanaga	Shawanaga	Parry Sound	Miss Mabel E. Tutt.	Undenominational
*Sheguiandah	Sheguiandah	Manitowaning	S. H. Ferris	Church of England
Sheshegwaning	Sheshegwaning	Gore Bay	Miss Adéle Duhamel	Roman Catholic
Sidney Bay	Cape Croker	Cape Croker	" Isabella McIver	Undenominational
Six Nations, No. 1	Six Nations	Six Nations	D. M. Hubbard	"
" No. 2	"	"	John Clark, Prin	"
			John Miller, assist	"
" No. 3	"	"	Walter Davis	"
" No. 5	"	"	John Lickers	"
" No. 6	"	"	Elam D. Bearfoot	"
" No. 7	"	"	R. J. Hawthorne	"
" No. 9	"	"	Miss Rosa B. Russell	"
" No. 10	"	"	" Sara Davis	"
" No. 11	"	"	T. W. Draper	"
Skene	Parry Island	Parry Sound	Mrs. A. E. McKelvie	"
South Bay	South Bay	Manitowaning	Miss Zoé St. James.	Roman Catholic
Spanish River	Spanish River	Thessalon	" Carrie Morley	Church of England
St. Clair	Sarnia	Sarnia	" AliceM. Matthews	Methodist
Sucker Creek	Sucker Creek	Manitowaning	" Ida H. Ferguson	Church of England
†Temogami	On Bear Island	Parry Sound	Mrs. C. Woods	Undenominational
Tyendinaga (Eastern)	Tyendinaga	Tyendinaga	Miss Jennie Harvey.	"
‡ " (Western)	"	"	Mrs. Lizzie Gervin	"
" (Central)	"	"	Miss Charlotte Cronk	"
" (Mission)	"	"	" Edith M. Goode	"
Walpole Island, No. 1	Walpole Island	Walpole Island	Albert Sahguj	Church of England
" No. 2	"	"	Joseph Sampson	Methodist
" No. 3	"	"	Arthur Muskokomon	Undenominational
West Bay	West Bay	Gore Bay	MissAnna R. Peacock	Roman Catholic
¶ Whitefish Lake	Whitefish Lake	Manitowaning	Mrs. J. H. McKay.	"
" River	" River	"	J. C. Ross	Church of England
Wikwemikong (boys)	Wikwemikong (unceded)	"	Albert A. Capps	Roman Catholic
" (girls)	"	"	Miss Emily Frawley.	"
Wikwemikongsing	Wikwemikongsing	"	" Rose Fagan	"
Total, Ontario				

*School closed during September quarter, 1903. No teacher. †This school is open during the
‡School closed September and December quarters, 1903. No. teacher. ¶School closed during

SESSIONAL PAPER No. 27

STATEMENT —*Continued.*

have been received) for the Year ended June 30, 1904.

Appropriation for Salary or yearly grant.	From what Fund paid.	Number on Roll.			Average Attendance.	Standard.						School.
		Boys.	Girls.	Total.		I	II	III	IV	V	VI	
$ cts												Ontario—*Concluded.*
250 00	Band, $100; Vote, $150	10	11	21	6	13	5	3	....	....	....	Shawanaga.
300 00	Band	8	8	16	7	11	5	...	....	....	....	Sheguiandah.
250 00	"	17	10	27	16	22	....	3	2	....	....	Sheshegwaning.
300 00	"	6	8	14	7	5	1	3	4	1	...	Sidney Bay.
.....	.....	29	24	53	20	22	12	12	2	5	....	Six Nations, No. 1.
400 00	.....	43	63	106	50	32	23	20	11	16	4	" No. 2.
350 00	.....											
.....	.....	26	15	41	15	22	9	2	7	1	....	" No. 3.
2950 00	Band, $3,250; Vote,	25	21	46	18	17	11	4	8	4	2	" No. 5.
	$450	11	15	26	12	16	4	4	....	1	1	" No. 6.
.....	.....	44	37	81	27	47	11	18	5	....	....	" No. 7.
....	.....	13	19	32	14	8	8	7	3	6	....	" No. 9.
.....	.....	27	27	54	19	22	14	8	6	4	...	" No. 10.
.....	.....	13	20	33	13	15	12	5	1	....	....	" No. 11.
250 00	Band	4	5	9	5	4	....	1	4	....	....	Skene.
200 00	Vote	10	15	25	18	12	6	4	3	....	....	South Bay.
250 00	"	6	6	12	6	10	2	....	....	....	....	Spanish River.
300 00	Band	14	25	39	16	19	7	6	6	1	....	St. Clair.
225 00	Vote	5	7	12	5	10	1	1	....	....	....	Sucker Creek.
150 00	"	8	15	23	13	16	6	1	...	....	....	Temogami.
130 00	Band	31	22	53	22	29	11	4	7	2	....	Tyendinaga (Eastern).
225 00	"	16	8	24	12	15	4	5	....	....	....	" (Western).
130 00	"	21	20	41	17	27	7	3	4	...	....	" (Central).
225 00	"	31	21	52	19	19	18	10	4	1	....	" (Mission).
200 00	"	18	17	35	13	22	3	6	4	....	....	Walpole Island, No. 1.
300 00	Vote	27	18	45	23	24	10	8	2	1	....	" No. 2.
300 00	Band	15	10	25	10	13	7	1	4	....	....	" No. 3.
250 00	"	11	24	35	19	20	9	6	....	....	....	West Bay.
250 00	"	7	10	17	13	9	6	2	....	....	....	Whitefish Lake.
250 00	Vote	5	5	10	5	3	2	....	5	....	....	" River.
300 00	"	29	....	29	9	28	1	....	....	....	....	Wikwemikong (Boys).
300 00	"	....	38	38	16	28	3	2	4	1	...	" (Girls).
200 00	"	7	7	14	9	7	4	3	....	....	....	Wikwemikongsing.
.....	.....	1027	1005	2032	931	1024	463	291	174	71	9	Total, Ontario.

summer only.

September quarter, 1903, and March quarter, 1904. Nc teacher.

SCHOOL

STATEMENT of Day Schools in the Dominion (from which Returns

School.	Reserve.	Agency.	Teacher.	Denomination.
QUEBEC.				
*Becancourt	Becancourt	Becancourt	Miss Gracia Deshaies	Roman Catholic
Bersimis	Bersimis	Bersimis	Sr. Marie du Carmel.	"
Caughnawaga (boys)	Caughnawaga	Caughnawaga	PeterJ.Delisle, Princ.	"
" (")	"	"	Peter Williams, Asst.	"
" (girls)	"	"	Miss Lucie Street, Pr.	"
" (")	"	"	Mme. A. Beauvais, Asst	"
" (mission)	"	"	Miss Christie A. Matheson	Methodist
Cornwall Island	St. Regis	St. Regis	David A. Benedict	Undenominational
Lorette	Lorette	Lorette	Sister St. Stanislas, Princ	Roman Catholic
"	"	"	Sister St. Augustine, Assist	"
Maniwaki	Maniwaki	Maniwaki	Miss Annie O'Connor	"
Maria	Maria	Maria	" Mary Eva Hall	"
Oka (country)	Oka	Oka	" Edna Hodgson	Methodist
" (village)	"	"	" L.H.Carmichael	"
Pointe Bleue	Pointe Bleue	Pointe Bleue	" Marie E. Girard	Roman Catholic
Restigouche	Restigouche	Restiguche	Sister Mary of the Holy Rosary	"
St. Francis (Prot.)	Pierreville	Pierreville	Rev. H. Loiselle	Church of England
" (R.C.)	"	"	Sister Mary Josephine, Princ	Roman Catholic
" (R.C.)	"	"	Sister Jeanne Françoise, Asst	"
St. Regis	St. Regis	St. Regis	Miss Tessie Shannon	Undenominational
†Timiskaming	Timiskaming	Timiskaming	James MacCarragher	Roman Catholic
Total, Quebec				
NOVA SCOTIA.				
Bear River	Bear River	Digby County	Miss Laura W. Barteaux	Roman Catholic
Eskasoni	Eskasoni	Cape Breton Co	Patrick Beaton	"
‡Half-way River	Franklin Manor	Cumb'land County	Miss Blanche Cameron	"
Indian Cove	Fisher's Grant	Pictou "	Miss Cassie McDonald	"
Middle River	Middle River	Victoria "	Daniel Buckles	"
Millbrook	Millbrook	Colchester "	Miss Jessie Scott	"
New Germany	Lunenburg	Lunenburg "	" Minnie A. Shea	"
Salmon River	Salmon River	Richmond "	Joseph L. McDonald	"
Shubenacadie	Indian Brook	Hants "	Robert J. Logan	"
Sydney	Sydney	Cape Breton "	Miss Nelly E. Connolly	"
Whycocomagh	Whycocomagh	Inverness "	A. J. McLennan	"
Total, Nova Scotia				

* Indian children attend white school. † School closed June quarter, 1904. No teacher.

STATEMENT—*Continued.*

have been received) for the year ended June 30, 1904.

Appropriation for Salary or Yearly Grant.	From what Fund paid.	Number on Roll. Boys.	Girls.	Total.	Average Attendance.	Standard. I	II	III	IV	V	VI	School.
$ cts.												Quebec.
40 00	Vote	1	1	2	1	2	....	....	....	...	....	Becancourt.
300 00	"	17	32	49	28	18	12	13	6	....	....	Bersimis.
450 00	"	117	....	117	40	86	22	4	5	....	....	Caughnawaga (boys).
300 00	"											
300 00	"	....	79	79	44	36	15	17	11	....	....	" (girls).
200 00	"											
125 00	"	23	19	42	15	27	7	5	3	....	....	" (mission.)
350 00	"	23	10	33	10	23	6	2	2	....	....	Cornwall Island.
150 00	"	29	26	55	42	29	8	11	7	....	....	Lorette.
150 00	"											
300 00	Band	16	33	49	10	27	12	8	2	....	...	Maniwaki.
150 00	Vote	12	9	21	10	8	1	5	4	....	3	Maria.
100 00	"	10	11	21	8	13	3	1	4	.. .	....	Oka (country).
125 00	"	12	9	21	12	6	5	5	3	1	1	" (village).
150 00	"	22	32	54	28	8	15	8	5	5	13	Pointe Bleue.
200 00	"	32	40	72	39	34	18	10	8	2	....	Restigouche.
250 00	"	7	7	14	5	5	2	1	6	....	....	St. Francis (Prot.)
290 00	"	44	27	71	52	33	8	7	13	6	4	" (R.C.)
250 00	"											
350 00	"	28	19	47	14	34	7	6	....	....	....	St. Regis.
300 00	"	24	24	48	19	17	19	6	3	3	....	Timiskaming.
.....	.....	417	378	795	377	406	160	109	82	17	21	Total, Quebec.
												Nova Scotia.
300 00	Vote	10	11	21	7	8	4	5	....	2	2	Bear River.
300 00	"	14	11	25	8	8	6	9	2	....	....	Eskasoni.
100 00	"	3	3	6	1	5	1	....	....	....	....	Half-way River.
300 00	"	15	8	23	13	9	4	3	2	2	3	Indian Cove.
300 00	"	11	11	22	7	12	5	3	1	1	....	Middle River.
300 00	"	11	13	24	12	6	4	3	6	3	2	Millbrook.
300 00	"	5	6	11	6	1	1	3	1	3	2	New Germany.
300 00	"	13	8	21	5	8	1‡	....	3	....	...	Salmon River.
300 00	"	6	5	11	4	3	4	1	1	....	2	Shubenacadie.
300 00	"	15	10	25	16	15	9	1	...	....	....	Sydney.
300 00	"	18	13	31	6	16	6	8	1	....	....	Whycocomagh.
.....	.....	121	99	220	85	91	54	36	17	11	11	Total, Nova Scotia.

‡ Indian children attend white school.

SCHOOL

STATEMENT of Day Schools in the Dominion (from which Returns

School.	Reserve.	Agency.	Teacher.	Denomination.
NEW BRUNSWICK.				
Burnt Church	Church Point	Northeastern.,	Charles Bernard	Roman Catholic
Big Cove	Big Cove	"	Miss Mary Isaac	"
Eel Ground	Eel Ground	"	Miss Lucy B. Walsh	"
Kingsclear	Kingsclear	Western	Miss M.C Monaghan	"
St. Mary's	St. Mary's	"	Miss M. J. Rush	"
Tobique	Tobique	"	Miss Helen Costigan	"
Total, New Brunswick				
PRINCE EDWARD ISLAND.				
Lennox Island	Lennox Island	P.E.I. Sup'c'y	Casimir J. Poirier	Roman Catholic
BRITISH COLUMBIA.				
Aiyansh	Kitladamicks	Northwest Coast	Rev. J.B. McCullagh	Church of England
Alert Bay	Nimkish	Kwawkewlth	Mrs. Elizabeth Hall.	"
Bella Bella	Bella Bella	"	Miss Mary A. Beatty	Methodist
Bella Coola	Bella Coola	Northwest Coast	MissA. E.Nordschow	"
Cape Mudge	Cape Mudge	Kwawkewlth.	J. Edward Rendle	"
*China Hat	China Hat	Northwest Coast	Miss Hannah Edgar.	"
†Clayoquot	Opitsat	West Coast	Rev. Chas. Moser	Roman Catholic
*Fort Rupert	Fort Rupert	Kwawkewtlh.	Daniel Wilson	Church of England
†Gitwingak	Kitwingar	Babine	Rev. Alfred E. Price	"
†Glen Vowell	Sikedach	"	J. P. Thorkildson	Salvation Army
†Gwayasdums	Gwayasdums	Kwawkewlth.	Daniel Wilson	Church of England
*Hartley Bay	Hartley Bay	Northwest Coast	George Reed	Methodist
Kincolith	Kincolith	"	Rev. W. H. Collinson	Church of England
Kita-maat	Kita-maat	"	Mrs F. M. H. Raley	Methodist
Kitkahtla	Kitkahtla	"	Rev. R. W. Gurd	Church of England
†Kishfiax	Kishfiax	Babine	" W. H. Pierce	Methodist
Kyaquot	Kyaquot	West Coast	" E. Sobrey	Roman Catholic
Massett	Massett	Northwest Coast	" W. E.Collison,	Church of England
Metlakahtla	Metlakahtla	"	Miss Helena Jackson	"
Nanaimo	Nanaimo	Cowichan	Mrs E. Nicholas	Methodist
†Nitanit	Cla-oose	West Coast	Rev. Wm. J. Stone	"
Port Essington	Skeena	Northwest Coast	Miss Kate Tranter	"
Port Simpson	At Port Simpson	"	Miss S. M. Stevenson	"
Quamichan	Quamichan	Cowichan	Rev. H. Durand	Roman Catholic
Saanich	Saanich	"	Wm. Thompson	"
Skidegate	Queen Charlotte Is.	Northwest Coast	Rev. E. W. Watson	Methodist
Somenos	Somenos	Cowichan	Rev. W. Lemmens	Roman Catholic
Songhees	Songhees	"	Sister M. Berchmans	"
Tsartlip	Tsartlip	"	Miss Virginia Hagan	"
Ucluelet	Itedse	West Coast	Miss Ellen C. McKay	Presbyterian
Total B. C.				

* New school. First return received was for December quarter, 1903. No grant paid.

† School closed during September quarter, 1903.

STATEMENT—*Continued.*

have been received) for the Year ended June 30, 1904.

Appropriation for Salary or yearly grant.	From what Fund paid.	Number on Roll.			Average Attendance.	Standard.						School.
		Boys.	Girls.	Total.		I	II	III	IV	V	VI	
												New Brunswick.
250 00	Vote	20	17	37	23	25	8	2	1	....	1	Burnt Church.
250 00	"	20	20	40	18	20	8	6	2	....	4	Big Cove.
250 00	"	6	9	15	11	5	3	....	2	5	....	Eel Ground.
250 00	"	12	12	24	15	10	5	4	3	2	....	Kingsclear.
250 00	"	10	10	20	13	4	5	7	2	2	....	St. Mary's.
240 00	" $150; Band $90.	10	17	27	13	7	5	8	3	4	....	Tobique.
.....	.....	78	85	163	93	71	34	27	13	13	5	Total, New Brunswick.
												Prince Edward Island.
300 00	Vote	11	11	22	12	5	6	6	3	1	1	Lennox Island.
												British Columbia.
300 00	Vote	20	7	27	21	12	...	7	3	5	....	Aiyansh.
300 00	"	12	14	26	12	12	5	1	5	2	1	Alert Bay.
300 00	"	26	25	51	21	25	17	7	2	....	...	Bella Bella.
300 00	"	15	6	21	5	18	2	1	....	....	....	Bella Coola.
300 00	"	12	5	17	4	10	5	2	....	....	...	Cape Mudge.
.....	.....	9	6	15	13	3	12	....	....	....	....	China Hat.
300 00	Vote	13	2	15	6	10	3	2	....	....	....	Clayoquot.
.....	.....	18	8	26	9	19	4	2	1	....	....	Fort Rupert.
300 00	Vote	5	15	20	10	9	5	6	....	....	....	Gitwingak.
300 00	"	10	10	20	13	15	5	....	....	....	....	Glen Vowell.
300 00	"	16	10	26	8	18	4	4	....	....	....	Gwayasdums.
.....	.....	9	8	17	10	10	4	3	....	....	....	Hartley Bay.
300 00	Vote	28	22	50	26	16	20	8	6	....	....	Kincolith.
300 00	"	31	30	61	31	33	9	12	7	....	....	Kita-maat.
300 00	"	27	17	44	18	15	6	10	8	5	....	Kitkahtla.
300 00	"	18	25	43	26	37	3	3	....	....	....	Kishfiax.
300 00	"	6	6	12	7	16	4	2	....	....	....	Kyaquot.
300 00	"	23	20	43	20	22	19	2	....	....	....	Massett.
300 00	"	15	22	37	19	20	8	5	1	3	....	Metlakahtla.
300 00	"	10	13	23	8	11	7	1	4	....	....	Nanaimo.
300 00	"	5	3	8	5	7	1	....	....	....	....	Nitanit.
300 00	"	17	23	40	16	25	6	4	5	....	....	Port Essington.
300 00	"	42	37	79	13	62	7	9	1	....	....	Port Simpson.
300 00	"	23	....	23	5	14	7	2	....	....	....	Quamichan.
300 00	"	18	....	18	10	7	3	4	3	1	....	Saanich.
300 00	"	14	13	27	12	13	6	7	1	....	....	Skidegate.
300 00	"	14	4	18	6	11	5	1	1	....	....	Somenos.
300 00	"	8	9	17	10	6	6	3	2	....	....	Songhees.
300 00	"	13	6	19	7	1	6	12	....	....	....	Tsartlip.
300 00	"	11	5	16	8	10	4	2	....	....	....	Ucluelet.
.....	.....	488	371	859	389	477	193	122	50	16	1	Total, B. C.

SCHOOL

STATEMENT of Day Schools in the Dominion (from which

School.	Reserve.	Agency.	Teacher.	Denomination.
MANITOBA.				
*Assabasca	Rainy River	Rat Portage	Joseph Dargue	Undenominational
*Berens River	Berens River	Berens River	Miss Eliza Postill	Methodist
Big Eddy	Pas	Pas	Nathan Settee	Church of England
Black River	Black River	Berens River	George Slater	"
†Bloodvein River	Bloodvein	"	Jeremiah Rundle	Methodist
Brokenhead	Brokenhead	Clandeboye	Mrs. M. L. Coates	Church of England
‡Chemawawin	Chemawawin	Pas	O. C. Pritchard	"
Couchiching	Couchiching	Fort Frances	Z. Charlebois	Roman Catholic
‡Crane River	Crane River	Manitowapah	John Moar	Church of England
*Cross Lake (Prot.)	Cross Lake	Berens River	Arthur Santmier	Methodist
† " (R.C.)	"	"	Mrs. J. D'Eschamb'lt	Roman Catholic
Cumberland	Cumberland	Pas	Alex. Seymour	Church of England
Ebb and Flow Lake,	Ebb & Flow Lake	Manitowapah	Miss M. O'Donnell	Roman Catholic
Fairford (Upper)	Fairford	"	Rev. George Bruce	Church of England
" (Lower)	"	"	Robert Bruce	"
*Fisher River	Fisher River	Berens River	Arthur M. McKersie	Methodist
Fort Alexander (Upper)	Fort Alexander	Clandeboye	Albert E. Leask	Church of England
" (R.C.)	"	"	J. A. H. Lane	Roman Catholic
Frenchman's Head	Lac Seul	Savanne	C. N. Chapman	Church of England
*Grand Rapids	Grand Rapids	Pas	Miss M. S. Simpson	"
Hollowwater River	Hollowwater River	Berens River	John Sinclair	"
*Islington	Islington	Rat Portage	Daniel W. Wood	"
‡Jackhead	Jackhead	Berens River	Louis LaRonde	"
‡Lac Seul (Canoe River)	Lac Seul	Savanne	D. W. Wood	"
Lake Manitoba	Lake Manitoba	Manitowapah	Louis E. Martel	Roman Catholic
Lake St. Martin	Lake St. Martin	"	T. H. Dobbs	Church of England
Little Saskatchewan	Little Saskatche'n.	Manitowapah	John E. Favell	"
Long Sault	Long Sault	Fort Frances	Miss Janet McLeod	"
Manitou Rapids	Manitou Rapids	" "	R. H. Bagshaw	"
Moose Lake	Moose Lake	Pas	James Settee	"
Muckle's Creek	St. Peters	Clandeboye	B. McKenzie	"
Pas	Pas	Pas	R. F. McDougall	"
Pine Creek	Pine Creek	Manitowapah	Rev. P. Bousquet	Roman Catholic
Poplar River	Poplar River	Berens River	James T. Blackford	Methodist
Red Earth	Red Earth	Pas	Charles Quinney	Church of England
†Roseau Rapids	Roseau Rapids	Portage la Prairie	Miss Annie Ramsay	Undenominational
§Rossville	Norway House	Berens River	Miss L. R. Lousley	Methodist
Sandy Bay	Sandy Bay	Manitowapah	Miss KatieO'Donnell	Roman Catholic
Shoal Lake	Pas Mountain	Pas	Louis Cochrane	Church of England
‡Stangecoming	Stangecoming	Fort Frances	Henry Girard	Roman Catholic
St. Peter's (North)	St. Peters	Clandeboye	Lewis Leclair	Church of England
" (South)	"	"	Miss Sadie Lewis	"
" (East)	"	"	Peter Harper	"
" (R. C.)	"	"	Miss M. FitzGerald	Roman Catholic
Swan Lake	Swan Lake	Portage la Prairie	K. M. Garrioch	Presbyterian
*Waterhen River	Waterhen River	Manitowapah	Lucien Guillot	Roman Catholic
Wabigoon	Wabigoon	Savanne	J. S. Newton	Church of England
Wabuskang	Wabuskang	"	James Fox	"
Total, Manitoba				

*No returns received for September quarter, 1903. †New school opened during December quarter

‡ Only one return received during the year.

SESSIONAL PAPER No. 27

STATEMENT—*Continued.*

Returns have been received) for the Year ended June 30, 1904.

Appropriation for Salary or yearly grant.	From what fund Paid.	Number on Roll.			Average Attendance.	Standard.						School.
		Boys.	Girls.	Total.		I	II	III	IV	V	VI	
$ cts.												Manitoba.
300 00	Vote	18	24	42	17	18	12	12	..	....	....	Assabasca.
300 00	"	15	22	37	11	26	8	3	....	....	....	Berens River.
300 00	"	10	14	24	8	19	3	2	....	....	....	Big Eddy.
300 00	"	3	7	10	4	7	2	1	...	....	....	Black River.
300 00	"	4	7	11	5	7	4	....	....	....	....	Bloodvein River
300 00	"	12	13	25	9	15	7	3	....	....	....	Brokenhead.
300 00	"	11	9	20	9	7	12	1	....	. ..	....	Chemawawin.
300 00	"	12	12	24	11	15	3	6	....	...	....	Couchiching.
300 00	"	9	1	10	6	6	2	2	....	....	....	Crane River.
300 00	"	20	12	32	13	23	5	4	....	....	....	Cross Lake (Prot.)
300 00	"	14	19	33	15	29	2	2	.. .	....	....	" (R.C.)
300 00	"	14	12	26	10	25	1	...	...	....	....	Cumberland.
300 00	"	9	8	17	10	8	5	1	3	....	....	Ebb and Flow Lake.
300 00	"	8	10	18	11	9	7	2	...	....	....	Fairford (Upper).
300 00	"	16	14	30	17	18	2	10	...	.. .	....	" (Lower).
300 00	"	23	12	35	19	14	8	7	....	6	....	Fisher River.
300 00	"	21	14	35	11	25	8	....	2	....	....	Fort Alexander (Upper).
300 00	"	15	8	23	7	18	4	1	. ..	....	....	" (R.C.)
300 00	"	12	9	21	8	19	2	....	....	....	....	Frenchman's Head.
300 00	"	9	15	24	10	14	5	5	....	...	....	Grand Rapids.
300 00	"	10	8	18	8	10	1	6	1	....	....	Hollowwater River.
300 00	"	14	10	24	9	18	5	1	....	....	...	*Islington.
300 00	"	11	7	18	13	14	4	....	....	....	....	Jackhead
300 00	"	8	9	17	2	14	3	...	....	....	....	Lac Seul (Canoe River).
300 00	"	14	7	21	11	6	9	6	....	....	....	Lake Manitoba.
300 00	"	24	11	35	24	26	4	4	1	....	. .	Lake St. Martin.
300 00	"	10	8	18	11	9	3	6	...	....	....	Little Saskatchewan.
300 00	"	3	13	16	8	6	4	3	3	. ..	....	Long Sault.
300 00	"	9	12	21	5	15	4	2	....	....	....	Manitou Rapids.
300 00	"	10	15	25	13	14	6	5	....	...	...	Moose Lake.
300 00	"	10	8	18	4	9	3	4	2	....	...	Muckle's Creek.
300 00	"	19	19	38	20	19	8	6	5	....	....	Pas.
$12 p.c.	"	6	10	16	15	4	5	1	5	....	1	Pine Creek.
300 00	"	24	12	36	15	26	5	5	. ..	....	....	Poplar River.
300 00	"	13	13	26	19	18	2	4	2	....	...	Red Earth.
300 00	"	13	15	28	13	27	1	....	....	....	....	Roseau Rapids.
300 00	"	12	11	23	11	21	2	....	....	....	....	Rossville.
300 00	"	25	21	46	20	20	15	7	2	2	....	Sandy Bay.
300 00	"	9	7	16	10	13	1	2	....	....	....	Shoal Lake.
300 00	"	9	12	21	9	12	6	3	....	...	....	Stangecoming.
300 00	"	9	12	21	6	15	2	2	2	....	....	St. Peter's (North).
300 00	"	20	19	39	19	14	5	7	8	5	....	" (South).
300 00	"	12	14	26	11	16	5	....	2	1	2	" (East).
300 00	"	10	11	21	7	12	5	3	1	....	....	" (R. C.).
300 00	"	2	6	8	4	5	3	....	....	...	....	Swan Lake.
300 00	"	5	9	14	8	9	4	1	....	....	...	Waterhen River.
300 00	"	11	13	24	8	19	5	...	....	....	....	Wabigoon.
300 00	"	10	13	23	5	22	1	....	....	....	....	Wabuskang.
.....	...	587	567	1,154	519	735	223	140	39	14	3	Total, Manitoba.

1903. § No return received for March quarter, 1904. || School closed during December quarter, 1903.

SCHOOL

STATEMENT of Day Schools in the Dominion (from which Returns

School.	Reserve.	Agen	Teacher.	Denomination.
NORTHWEST TERRITORIES.				
Attakakoop	Attakakoop	Carlton	MissIdaTSutherland	Church of England
Big River	Kenemotayoo's	"	J. Isbister, sr.	" "
Bulls Horn	Blood	Blood	C. H. Collinson	" "
Day Star's	Day Star's	Touchwood Hills	Miss Sophia Smythe.	" "
*Fishing Lake	Fishing Lake	"	Andrew W. Anderson	" "
Goodfish Lake	Pakan	Saddle Lake	Vincent Smith	Methodist
James Smith's	James Smith's	Duck Lake	D. McDonald	Church of England
John Smith's	John Smith's	"	Miss Ethel Shipman.	" "
Joseph's	Joseph's	Edmonton	" Const. DeCazes	Roman Catholic
Key's	Key's	Pelly	Owen Owens	Church of England
Lac la Ronge	Lac la Ronge	Carlton	Samuel Abrahams	" "
Little Pine's	Little Pine's	Battleford	C. T. Desmarais	" "
Louis Bull's	Louis Bull's	Hobbema	A. A. Goodhand	Methodist
†Meadow Lake	Meadow Lake	Carlton	Peter Villebrun	Roman Catholic
Mistawasis	Mistawasis	"	MissJennieW.Moore	Presbyterian
Montreal Lake	Montreal Lake	"	Jno. R. Settee	Church of England
‡Morley No. 1	Bearspaw	Stony	Andrew Sibbald	Methodist
Okanase	Okanase	Birtle	James M. Macalister	Presbyterian
Poundmaker's	Poundmaker's	Battleford	Miss Regina Arcand	Roman Catholic
Red Pheasant	Ped Pheasant	"	Mrs. M. Jefferson	Church of England
Sampson's	Sampson's	Hobbema	Miss Sue Klippert	Methodist
Shoal River	Key's	Pelly	Rev. A. T. Norquay.	Church of England
Sioux Mission	Near Prince Albert		Miss Lucy M. Baker	Presbyterian
§South Fort à la Corne	James Smith's	Duck Lake	Mrs. Ada A. Godfrey	Undenominational
Stony (Eagle Hills)	Stony	Battleford	James Brown	Church of England
Sturgeon Lake	Twatt's	Carlton	Robert Bear	" "
‡St. Anthony's	Lesser Slave Lake. / Peace River Dist'ct	In Treaty No. 8.	Rev. Father Desmarais, O.M.I	Roman Catholic
Thunderchild's (C. E.)	Thunderchilds	Battleford	G. F. Gibbs	Church of England
White Bear	White Bear	Moose Mountain	Elizabeth C. Scott	Presbyterian
‖White Cap Sioux	Moose Woods		Mrs. W. R. Tucker	Methodist
Whitefish Lake	James Seenum's	Saddle Lake	Miss J. S. R. Batty.	"
§Whitefish Lake, (St. Andrews Mission.	Lesser Slave Lake District.	In Treaty No. 8.	" L. S. Millen	Church of England
White Whale Lake	Paul's	Edmonton	C. F. Hopkins	Methodist
Total, N. W. T.				

* New school. Opened during March quarter, 1904.

† No return received for December quarter, 1903.

‖ No return received for March quarter, 1904.

SESSIONAL PAPER No. 27

STATEMENT—*Continued.*

have been received) for the Year ended June 30, 1904.

Appropriation for Salary or yearly grant.	From what Fund Paid.	Number on Roll.			Average Attendance.	Standard.						School.
		Boys.	Girls.	Total.		I	II	III	IV	V	VI	
$ cts.												Northwest Territories.
300 00	Vote	8	8	16	8	11	2	2	...	1	....	Attakakoop.
300 00	"	5	7	12	6	9	2	1	...	....	....	Big River.
300 00	"	21	12	33	4	33	..	...	....	....	....	Bulls Horn.
300 00	"	7	8	15	11	2	4	3	6	....	..	Day Star's.
300 00	"	4	8	12	4	10	2	....	..	....	....	Fishing Lake.
300 00	"	16	9	25	11	21	4	...	...	....	....	Goodfish Lake.
300 00	"	13	17	30	9	28	2	...	....	....	....	James Smith's.
300 00	"	6	12	18	8	12	3	2	1	...	....	John Smith's.
300 00	"	12	12	24	6	23	1	...	....	....	....	Joseph's.
300 00	"	4	10	14	7	8	3	3	...	....	....	Key's.
300 00	"	6	12	18	8	13	5	....	..	....	...	Lac la Ronge.
300 00	"	10	6	16	7	15	...	1	....	..	....	Little Pine's.
300 00	"	4	8	12	5	8	1	1	2	....	...	Louis Bull's.
300 00	"	6	7	13	8	9	4	....	...	...	....	Meadow Lake.
300 00	"	9	9	18	9	13	2	1	2	....	...	Mistawasis.
300 00	"	9	16	25	15	13	7	4	1	....	....	Montreal Lake.
300 00	"	8	14	22	9	22	....	....	....	....	....	Morley No. 1.
300 00	"	5	10	15	8	11	3	1	....	....	...	Okanase.
300 00	"	7	5	12	4	9	3	....	....	....	....	Poundmaker's.
300 00	"	9	7	16	7	11	2	3	....	....	....	Red Pheasant.
300 00	"	11	8	19	5	16	3	....	....	....	...	Sampson's.
300 00	"	6	15	21	10	21	....	....	....	....	....	Shoal River.
300 00	"	4	5	9	5	3	....	5	1	....	....	Sioux Mission.
300 00	"	8	13	21	13	21	....	....	....	....	....	South Fort à la Corne
300 00	"	5	2	7	4	5	2	....	..	....	....	Stony (Eagle Hills).
300 00	"	7	6	13	6	10	3	....	...	...	....	Sturgeon Lake.
300 00	"	5	5	10	10	4	4	2	....	....	....	St. Anthony's.
300 00	"	5	4	9	4	6	3	....	....	....	....	Thunderchild's (C.E.)
300 00	"	13	7	20	10	10	7	3	....	....	....	White Bear.
300 00	"	4	7	11	6	3	1	4	3	....	....	White Cap Sioux.
300 00	"	9	13	22	8	17	4	....	1	....	....	Whitefish Lake.
300 00	"	13	8	21	14	15	6	....	....	..	...	Whitefish Lake (St. Andrews Mission).
300 00	"	11	8	19	3	19	....	....	...	....	...	White Whale Lake.
.....	.....	270	298	568	252	431	83	36	17	1	....	Total, N.W.T.

1903. ‡ Only one return received during the year. § New school. Opened during December

SCHOOL

STATEMENT of Day Schools in the Dominion (from which

School.	District.	Teacher.	Denomination.
OUTSIDE TREATY LIMITS.			
Albany Mission (C.E)	Moosonee diocese, James Bay.	Rev. R. J. Renison..	Church of England
" " (R.C)....	Fort Albany, James Bay.....	Sr. St. Felix of Valois	Roman Catholic...
Fort George.....	Moosonee diocese, James Bay.....	Rev. W. G. Walton.	Church of England
Herschel Island	McKenzie River district.	C. E. Whittaker...	" "
Mistassini.....	Diocese of Moosonee, James Bay.....	.....	" "
Moose Fort.....	" " "	T. Bird Holland....	" "
Nelson House.....	Keewatin district.....	S. D. Gaudin.....	Methodist.....
Providence Mission..... (Sacred Heart).....	Fort Providence, McKenzie River district..	Sister St. Elzear....	Roman Çatholic...
Rupert's House.....	Great Whale River, Moosonee diocese	J. E. Woodall	Church of England
St. D avid's Mission.	Fort Simpson, McKenzie Riv. district.	Rev. Jas. R. Lucas..	" "
York Factory	Moosonee diocese, Hudson Bay	Rev. R. Faries.....	" "
Total, Outside Treaty.		... .	. . ..

STATEMENT—*Continued.*

Returns have been Received) for the Year ended June 30, 1904.

Appropriation for Salary or yearly Grant.	From what Fund Paid.	Number on Roll.			Standard.						Average Attendance.	School.
		Boys.	Girls.	Total.	I	II	III	IV	V	VI		
$ cts.												Outside Treaty Limits.
200 00	Vote..	35	42	77	38	77	....	....	....	....	....	Albany Mission (C.E.).
300 00	"	10	13	23	17	23	....	....	....	....	....	" " (R.C.).
200 00	"	38	40	78	28	78	....	....	....	....	....	Fort George.
200 00	"	13	13	26	11	22	3	1	..	....	....	Herschel Island.
.....	No grant paid.	12	24	36	19	26	3	7	....	....	....	Mistassini.
200 00	Vote..	31	30	61	20	61	....	....	....	....	....	Moose Fort.
200 00	"	6	10	16	7	6	8	1	...	1	....	Nelson House.
200 00	"	13	19	32	26	25	5	2	..	....	....	Providence Mission (Sacred Heart).
200 00	"	25	25	50	26	50	....	....	....	....	....	Rupert's House.
200 00	"	10	11	21	8	20	....	1	....	....	...	St. David's Mission.
200 00	"	14	12	26	18	12	6	4	4	....	....	York Factory.
.....	.....	207	239	446	218	400	25	16	4	1	....	Total, Outside Treaty.

SCHOOL

STATEMENT of Boarding Schools in

School.	Situation.	Principal.	Denom
ONTARIO.			
Fort William Orphanage....	At Fort William, Ont	Sister M. Ignatia....	Roman Catholic...
BRITISH COLUMBIA.			
Ahousaht	At Ahousaht, West Coast agency .	Rev. J. C. Butchart..	Presbyterian.....
Alberni.....	At Alberni, Tresaht reserve, West Coast agency.....	James R. Motion...	" . ...
Alert Bay Girls' Home.....	At Alert Bay, Nimkish reserve, Kwawkewlth agency..	A. W. Corker.....	Church of England
Port Simpson Boys' Home..	At Port Simpson, N.-west Coast ag.	Chs. M. Richards...	Methodist.....
Port Simpson Girls' Home...	At Port Simpson, N.-west Coast ag.	Miss Han. M. Paul...	" .....
Squamish..... ..	At Squamish, Fraser river agency.	Sister Mary Amy....	Roman Catholic...
St. Mary's	At St. Mary's Mission, on the Fraser river	Rev. C. Marchal (ac).	" ..
Yale (All Hallows)..... ...	At Yale, on the Fraser river.....	Amy, Sister Superior	Church of England
Total, British Columbia.	... .	....	.....
MANITOBA.			
Cecilia Jeffrey.....	Shoal Lake reserve, Rat Portag. ag.	Austin G. McKitrick.	Presbyterian.....
Norway House	At Norway House, in Norway House agency....	Rev. J. A. Lousley...	Methodist.....
Pine Creek.....	At mouth of Pine Creek, Lake Winnipegosis Manitowapah agency..	Rev. P. Bousquet ..	Roman Catholic...
Portage la Prairie..	At Portage la Prairie, Man.....	W. A. Hendry.....	Presbyterian... ..
Rat Portage	At Rat Portage, Ont.....	Rev. C. Cahill, O.M.I.	Roman Catholic...
Total, Manitoba	....	.....	....
NORTHWEST TERRITORIES.			
Birtle.....	At Birtle, Man.....	E. H. Crawford.....	Presbyterian.....
Blood (C.E).....	On Blood reserve, Blood agency...	G. E. Gale.....	Church of England
Blood (R.C)	On Blood reserve, Blood agency. .	Rev Z. L. Le Vern, OMI	Roman Catholic...
Blue Quill's	Blue Quill's reserve, Saddle lake ag.	Leon Balter.....	" ..
Crowfoot....	On Blackfoot reserve, Blackfoot ag.	Rev. J. Riou, O.M.I.	" ..
Crowstand.....	Near Côté's reserve, Pelly agency .	W. McWhinney	Presbyterian.....
Cowessess'.....	On Cowessess' reserve, Crooked Lakes agency	Rev. S. Perreault, O. M. I.....	Roman Catholic...
Duck Lake.....	On Duck Lake reserve, Duck Lake agency	Rev. O Charlebois, O. M. I.....	" ..
Emmanuel College.....	At Prince Albert, Sask.....	Rev. Jas. Taylor....	Church of England
Ermineskin's.	On Ermineskin's reserve, Hobbema agency.....	Rev. L. Dauphin, O. M. I..... .	Roman Catholic...
File Hills.....	On File Hills reserve, Qu'Appelle agency.....	Miss K. J. Gillespie..	Presbyterian.....
Fort Resolution.....	At Fort Resolution, Great Slave Lake Treaty No. 8.....	Rev. C. Sr. McQuillan	Roman Catholic...

SESSIONAL PAPER No. 27

STATEMENT—*Continued.*

the Dominion for the Year ended June 30, 1904.

Grant.	From what Fund paid.	Number on Roll.			Average Attendance.	Standard.						School.
		Boys.	Girls.	Total.		I	II	III	IV	V	VI	
												ONTARIO.
$500	Vote..	16	22	38	31	15	9	11	3	..	....	Fort William Orphanage.
												BRITISH COLUMBIA.
25 pupils, $60 p. cap.	" .	15	15	30	28	9	6	11	4	....	....	Ahousaht.
30 " $60 " .	" .	27	21	48	38	7	12	12	6	11	....	Alberni.
10 " $60 " .	" .	..	8	8	6	....	....	....	2	3	3	Alert Bay Girls' Home.
10 " $60 " .	" .	21	...	21	21	5	9	4	1	2	....	Port Simpson Boys' Home.
20 " $60 " .	" .	...	45	45	43	5	11	10	15	3	1	Port Simpson Girls' Home.
50 " $60 " .	" .	23	27	50	50	18	14	6	3	7	2	Squamish.
60 " $60 " .	" .	31	38	69	69	4	12	14	29	10	....	St. Mary's.
35 " $60 " .	" .	....	32	32	31	9	3	5	2	6	7	Yale (All Hallows).
....	.....	117	186	303	286	57	67	62	62	42	13	Total, British Columbia.
												MANITOBA.
30 pupils, $72 p. cap.	Vote..	13	8	21	17	8	7	6	....	....	....	Cecilia Jeffrey.
50 " $72 " .	" .	27	31	58	46	11	17	19	10	1	....	Norway House.
55 " $72 " .	" .	24	34	58	55	2	3	16	15	9	13	Pine Creek.
20 " $72 " .	" .	9	13	22	20	3	3	12	....	4	....	Portage la Prairie.
30 " $72 " .	" .	18	14	32	30	23	6	3	...	..	....	Rat Portage.
.....	.....	91	100	191	168	47	36	56	25	14	13	Total, Manitoba.
												NORTHWEST TERRITORIES.
40 pupils, $72 p. cap.	Vote..	15	28	43	39	17	5	14	7	....	....	Birtle.
50 " $72 " .	" .	26	22	48	45	13	6	15	3	11	....	Blood (C.E.)
25 " $72 " .	" .	23	10	33	28	19	7	7	....	....	....	Blood (R.C.)
45 " $72 " .	" .	28	14	42	28	14	9	12	4	2	1	Blue Quill's.
25 " $72 " .	" .	18	6	24	20	9	2	10	3	....	....	Crowfoot.
40 " $72 " .	" .	23	22	45	40	18	10	8	9	....	....	Crowstand.
40 " $72 " .	" .	27	16	43	40	32	3	8	....	....	....	Cowessess'.
100 " $100 " .	" .	58	48	106	99	29	15	30	18	9	5	Duck Lake.
{ 20 boys, $100 p. c { 32 b. & g. $72 " }	" .	33	21	54	49	21	12	9	7	3	2	Emmanuel College.
50 pupils, $72 p. cap.	" .	27	25	52	48	24	4	11	9	....	4	Ermineskin's.
15 " $72 " .	" .	10	8	18	15	6	4	2	6	...	.. .	File Hills.
25 " $72 " .	" .	7	6	13	13	3	8	2	....	...	....	Fort Resolution.

SCHOOL

STATEMENT of Boarding Schools

School.	Situation	Principal.	Denomination.
N. W. TERRITORIES—*Con.*			
Ft. Chipewyan (Holy Angels)	At Nativity Mission, Fort Chipewyan, Treaty No. 8	Rev. Sr. McDougall.	Roman Catholic...
Gordon's	On Geo. Gordon's reserve, Touchwood Hills agency	Rev. M. Williams...	Church of England
Isle à la Crosse	At Isle à la Crosse, Carlton agency.	Rev. X. Simonin, O.M.I	Roman Catholic. .
Lesser Slave Lake (C.E.)	At Lesser Slave Lake, Peace River district, Treaty No. 8	C. D. White	Church of England
" " " (R.C.)	At Lesser Slave Lake, Peace River district, Treaty No. 8	Rev. C. Falher, O.M.I	Roman Catholic...
Muscowequan's	On Muscowequan's reserve, Touchwood Hills agency	Rev. J. A. Magnan..	" " ...
McDougall Orphanage	On Morley reserve, Stony agency..	John W. Niddrie....	Methodist
Old Sun's	On the Blackfoot reserve	Rev. H. W. Gibbon Stocken	Church of England
Onion Lake (R.C.)	On Seekaskootch reserve, Onion Lake agency	Rev. E. J. Cunningham	Roman Catholic...
" " (C.E.)	On Seekaskootch reserve, Onion Lake agency	Rev. J. R. Matheson	Church of England
Peigan (C.E.)	On Peigan reserve, Peigan agency.	Rev. W. R. Haynes.	" "
" (R.C.)	" " " "	Rev. L. Doucet, O.M.I	Roman Catholic...
Round Lake	In Crooked Lakes agency	Rev. H. McKay	Presbyterian.. ...
Sarcee..	On Sarcee reserve, Sarcee agency..	Percy Stocken	Church of England
Smoky River (St. Augustine).	Near Peace River crossing, at mouth of Smoky River, Treaty No. 8..	Rev. Sister Sosténe .	Roman Catholic...
St. Albert	At St. Albert settlement, Alta	Rev. Sister L. A. Dandurand	" " ...
Thunderchild's..	On Thunderchild's reserve, Battleford agency	Rev. H. Delmas, O.M.I..	" " ...
Vermilion (St. Henri).	At Fort Vermilion, Peace River district, Treaty No. 8	Rev. Sister Matthias	" " ...
Wabiscow Lake (C.E.)	At St. John's Mission, Wabiscow Lake, Treaty No. 8	Mrs. Agnes L. Parrott	Church of England
" " (R.C.)	At St. Martins Mission, Wabiscow Lake, Treaty No. 8.	Rev. Sister Tiburce..	Roman Catholic. .
Total, N.W.T			

SESSIONAL PAPER No. 27

STATEMENT—*Continued.*

in the Dominion for the year ended June 30, 1904.

Grant.	From what Fund paid.	Number on Roll.			Average Attendance.	Standard.						School.
		Boys.	Girls.	Total.		I	II	III	IV	V	VI	
												N. W. Territories—*Con.*
40 pupils, $72 per cap.	Vote..	20	16	36	35	21	10	4	1	....	....	Ft. Chipewyan (Holy Angels)
30 " $72 " .	" .	10	15	25	25	5	3	8	7	2	....	Gordon's.
20 " $72 " .	" .	7	13	20	20	6	7	7	.. .	....	....	Isle à la Crosse.
15 " $72 " .	" .	15	19	34	25	12	9	7	6	....	....	Lesser Slave Lake (C.E.)
40 " $72 " .	" .	22	18	40	35	16	11	12	1	....	....	" " (R.C.)
30 " $72 " "	" .	17	13	30	30	12	6	7	4	1	....	Muscowequan's.
40 " $72 " .	" .	26	22	48	39	17	16	4	11	....	...	McDougall Orphanage.
50 " $72 " .	" .	25	18	43	40	13	12	9	9	....	.. .	Old Sun's.
50 " $72 " .	" .	25	20	45	41	16	9	6	8	4	2	Onion Lake (R.C.)
16 " $72 " .	" .	10	11	21	15	11	....	1	6	3	....	" " (C.E.)
30 " $72 " .	" .	11	14	25	22	17	6	2	....	....	....	Peigan (C.E.).
20 " $72 " .	" .	12	14	26	21	15	7	4	....	....	....	" (R.C.).
40 " $72 " .	" .	13	14	27	25	10	3	5	4	2	3	Round Lake.
15 " $72 " .	" .	9	8	17	14	4	4	4	4	1	....	Sarcee.
15 " $72 " .	" .	10	8	18	14	11	7	....	....	....	....	Smoky River (St. Augustine).
80 " $72 " .	" .	34	39	73	69	43	8	16	6	....	....	St. Albert.
20 " $72 " .	" .	12	8	20	18	6	6	4	4	....	....	Thunderchild's.
15 " $72 " .	" .	2	1	3	2	3	....	....	....	....	....	Vermilion (St. Henri).
15 " $72 " .	" .	7	8	15	13	6	...	6	3	....	....	Wabiscow Lake (C.E.)
15 " $72 " .	" .	11	14	25	25	12	10	3	....	.. .	....	" " (R.C.)
....	.....	593	519	1112	992	461	219	237	140	38	17	Total, N.W.T.

STATEMENT of Industrial Schools

School.	Situation.	Principal.	Denomination.	Grant.
ONTARIO.				
Mohawk Institute.....	At Brantford.....	Rev. R. Ashton...	Undenominational	91 pupils, $60 per cap.
Mount Elgin Institute.	At Muncey	Rev. T. T. George.	Methodist.....	100 " $60 "
Shingwauk Home.....	At Sault Ste. Marie .	Geo. Ley King....	Church of England	100 " $60 "
Wikwemikong (boys)..	At Wikwemikong...	Rev.J. Paquin,S.J.	Roman Catholic ..	60 " $60 "
" (girls)..	" ...	" "	" ..	60 " $60 "
Total, Ontario....	.....	.....	.....	.....
BRITISH COLUMBIA.				
Alert Bay	At Alert Bay, on Nimkish reserve...	A. W. Corker.....	Church of England	35 pupils, $130 per cap
Clayoquot	Adjoining Opitsat, No. 1 reserve, West Coast agency ...	Rev. P. Maurus...	Roman Catholic...	50 " $130 "
Coqualeetza Home....	At Chilliwack, Fraser River agency	Rev. Joseph Hall..	Methodist	80 " $130 "
Kamloops	At Kamloops.....	Rev. A. M. Carion	Roman Catholic...	50 " $130 "
Kootenay	At Kootenay.....	Rev. N. Coccola...	" ..	50 " $130 "
Kuper Island.....	At Kuper Island, Cowichan agency..	Rev. G. Donkele..	" ..	50 " $130 "
Lytton	At Lytton,Kamloops-Okanagan agency..	Rev. Geo. Ditcham	Church of England	40 " $130 "
Metlakatla.....	At Metlakatla, West coast agency.....	John R. Scott.....	" ..	25 boys, $140 " / 25 girls, $100 "
Williams Lake.....	At Williams Lake...	Rev. H. Boening..	Roman Catholic...	50 pupils, $130 "
Total, B. C.....	.....	.....	.....	.....
MANITOBA.				
Brandon	At Brandon.....	Rev. T. Ferrier...	Methodist	115 pup's, $120 per cap
*Elkhorn..... ...	At Elkhorn	A. E. Wilson.....	Undenominational	.....
*Rupert's Land.....	At Middlechurch....	Joseph Thompson.	" ..	.....
St. Boniface	At St. Boniface.....	Rev. N. A. Ruelle	Roman Catholic...	100 pup's, $110 per cap
Total, Manitoba ..	.....	.....	.....	.....
N. W. TERRITORIES.				
Battleford	At Battleford, Sask..	Rev. E. Matheson	Church of England	120 pup's, $145 per cap
*Calgary.....	At Calgary, Alta....	Rev. G. H. Hogbin	Undenominational	.....
Qu'Appelle	At Qu'Appelle, Assa.	Rev. J. Hugonard.	Roman Catholic...	225 pup's, $120 per cap
Red Deer.	At Red Deer, Alta..	Rev. J. P. Rice...	Methodist	80 " $130 "
Regina	At Regina, Assa.....	Rev. J. A. Sinclair	Presbyterian	125 " $130 "
St. Joseph's.....	At High River, Alta.	Rev. A. Naessens.	Roman Catholic...	120 " $130 "
Total, N.W.T.....	.....	.....	.....	.....

NOTE.—All boys at industrial schools are taught farming, and all girls sewing, knitting and general

SESSIONAL PAPER No. 27

STATEMENT—*Concluded.*

in the Dominion for the Year ended June 30, 1904.

From what Fund Paid.	Number on Roll.			Average Attendance.	Standard.						Industries.									School.
	Boys.	Girls.	Total.		I.	II.	III.	IV.	V.	VI.	Carpenter.	Shoemaker.	Tailor.	Blacksmith.	Baker.	Harnessmaker	Printer.	Painter.	Tinsmith.	
																				ONTARIO.
Vote	40	50	90	77	...	7	22	27	12	22	2	..	..	..	..	..	..	..	..	Mohawk Institute.
"	55	50	105	161	44	16	14	14	15	2	2	..	..	..	..	..	..	..	..	Mount Elgin Institute.
" & sch'l fund	41	20	61	56	13	13	12	11	12	....	4	..	..	..	..	..	..	..	..	Shingwauk Home.
"	86	..	86	69	30	25	13	10	8	...	5	2	..	2	..	..	..	..	1	Wikwemikong (boys).
"	...	65	65	54	8	20	15	19	3	....	..	..	..	..	..	..	..	..	..	" (girls).
	222	185	407	357	95	81	76	81	50	24	13	2	..	2	..	..	..	..	1	Total, Ontario.
																				BRITISH COLUMBIA.
Vote	14	...	14	11	1	3	5	3	...	2	12	..	..	..	..	..	..	..	..	Alert Bay.
"	30	31	61	58	6	10	13	10	17	5	5	2	..	..	5	..	..	4	..	Clayoquot.
"	64	30	94	84	22	12	16	21	14	9	4	4	..	3	4	..	..	4	..	Coqualeetza Home.
"	27	26	53	52	7	11	6	15	12	2	14	6	..	..	..	..	..	..	..	Kamloops.
"	31	24	55	51	3	6	21	15	10	....	..	..	..	..	..	..	..	..	..	Kootenay.
"	32	28	60	58	2	13	12	14	14	5	..	..	..	..	10	..	..	3	..	Kuper Island.
"	25	...	25	16	13	12	....	....	...	....	..	..	..	..	..	..	..	..	..	Lytton.
"	27	27	54	51	...	7	21	10	16	....	15	1	..	..	..	..	..	..	..	Metlakatla.
"	20	27	47	44	10	11	10	16	...	....	3	..	..	..	..	..	..	..	..	Williams Lake.
	270	193	463	425	64	85	104	104	83	23	53	13	..	3	19	..	..	11	..	Total, B. C.
																				MANITOBA.
Vote	50	55	105	101	35	14	26	12	18	...	..	..	..	..	..	..	..	..	..	Brandon.
	54	26	80	58	9	13	19	29	8	2	5	3	..	2	1	2	..	..	..	Elkhorn.
	55	51	106	77	40	13	22	22	8	1	4	1	2	..	..	..	2	..	..	Rupert's Land.
Vote	45	36	81	72	20	19	25	14	3	....	2	..	..	..	..	..	..	..	..	St Boniface.
	204	168	372	308	104	59	92	77	37	3	11	4	2	2	1	2	2	..	..	Total, Manitoba.
																				N. W. TERRITORIES.
Vote	41	49	90	86	11	11	33	23	8	4	9	1	..	..	6	..	..	..	..	Battleford.
	36	...	36	28	1	4	9	15	7	....	..	..	..	..	..	..	..	..	..	Calgary.
Vote	99	131	230	221	50	39	91	31	19	....	7	8	..	3	6	..	4	..	3	Qu'Appelle
"	60	32	92	70	44	15	15	13	5	....	5	..	..	..	..	..	..	..	..	Red Deer.
"	69	42	111	83	30	16	15	29	10	11	8	3	..	2	3	..	8	..	..	Regina.
"	57	24	81	77	14	17	26	16	5	3	4	..	..	..	..	..	..	..	..	St. Joseph's.
	362	278	640	565	150	102	189	127	54	18	33	12	..	5	15	..	12	..	3	Total, N.W.T.

household duties. *All expenditure paid by the government.

SUMMARY OF

Province.	Class of School			Number of Schools.	Denomination.						Number on Roll			Average Attendance
	Day	Boarding	Industrial		Undenominational	Roman Catholic	Church of England	Methodist	Presbyterian	Salvation Army	Boys	Girls	Total	
Ontario	71	1	5	77	36	22	9	10	....	....	1,265	1,212	2,477	1,319
Quebec	17	....	....	17	2	11	1	3	....	....	417	378	795	377
Nova Scotia	11	....	....	11	....	11	....	....	....	....	121	99	220	85
New Brunswick	6	....	....	6	....	6	....	....	....	....	78	85	163	93
Prince Edward Island	1	....	....	1	....	1	....	....	....	....	11	11	22	12
British Columbia	30	8	9	47	....	14	14	15	3	1	875	750	1,625	1,100
Manitoba	48	5	4	57	4	13	29	8	3	....	882	835	1,717	995
Northwest Territories	33	32	6	71	2	24	27	9	9	....	1,225	1,095	2,320	1,809
Outside Treaty Limits	11	....	....	11	....	2	8	1	....	....	207	239	446	218
Total	228	46	24	298	44	104	88	46	15	1	5,081	4,704	9,785	6,008

NOTE.—All boys at industrial schools are taught farming.

DEPARTMENT OF INDIAN AFFAIRS
Ottawa, October 31, 1904.

SCHOOL STATEMENT.

Percentage of Attendance.	Standard.						Industries Taught.									Total	Province.
	I	II	III	IV	V	VI	Carpenter.	Shoemaker	Tailor	Blacksmith	Baker	Harnessmaker	Printer	Painter	Tinsmith		
53·25	1,134	553	378	258	121	33	13	2	..	2	..	..	..	..	1	18	Ontario
47·42	406	160	109	82	17	21	....	..	..	..	..	..	..	..	..	....	Quebec
38·63	91	54	36	17	11	11	....	..	..	..	..	..	..	..	..	.....	Nova Scotia
57·05	71	34	27	13	13	5	....	..	..	..	..	..	..	..	..	.....	New Brunswick
54·54	5	6	6	3	1	1	....	..	..	..	..	..	..	..	..	.....	Prince Edward Island
67·69	598	345	288	216	141	37	53	13	..	3	19	..	..	11	..	99	British Columbia
57·95	886	318	288	141	65	19	11	4	2	2	1	2	2	..	..	24	Manitoba
77·97	1,042	404	462	284	93	35	33	12	..	5	15	.	12	..	3	80	Northwest Territories
48·87	400	25	16	4	1	....	....	..	..	..	..	..	..	..	..	.....	Outside Treaty Limits
61·40	4,633	1,899	1,610	1,018	463	162	110	31	2	12	35	2	14	11	4	221	Total

INDIAN LAND STATEMENT

SHOWING the number of acres of Indian Lands sold during the year ended June 30, 1904, the total amount of purchase money and the approximate quantity of land remaining unsold at that date.

PROVINCE OF ONTARIO.

Town or Township.	County or District.	Number of acres of Land sold.	Amount of Sales.	Approximate Quantity remaining unsold.	Remarks.
		Acres.	$ cts.	Acres.	
Albemarle	Bruce	50·00	60 00	159·00	Some of these lands
Amabel	"	100·00	30 00	.....	were resumed by the
Eastnor	"	199·00	60 00	2,540·00	department, the con-
Lindsay	"	.....	.....	3,075·00	ditions of sale not
St. Edmund	"	.....	.....	3,806·00	having been complied
Bury (T. plot)	"	.....	.....	176·53	with, so that in cer-
Hardwicke (T. plot)	"	.....	.....	1,111·00	tain cases there ap-
Cape Croker Res	"	77·00	77 00	.....	pears to have been
Oliphant (T. plot)	"	.....	.....	40·09	more land remaining
Southampton (T. plot)	"	.....	.....	21·75	unsold at the close of
Wiarton (Town)	"	3·15	86 00	12·22	the past fiscal year
Saugeen Fishing Islands	"	31·75	270 00	1,414·14	than remained unsold
Keppel	Grey	.....	.....	2,210·60	according to the pre-
Brooke (T. plot)	"	.....	.....	4 50	vious year's report.
White Cloud Island	"	56·38	119 00	16·50	
Thessalon	Algoma	175·20	275 20	1,817·34	
" (T. plot)	"	2·82	154 50	31·35	
Aweres	"	2,836·00	1,418 00	5,053·10	
Archibald	"	.....	.....	3,264·00	
Dennis	"	1,765·50	883 00	1,496·00	
Fisher	"	9,687·00	3,174 70	829·00	
Herrick	"	320·00	160 00	6,553·53	
Havilland	"	13,014 00	4,260 05	641·50	
Kars	"	.....	.....	9,363·00	
Apaquosh (T. plot)	"	.....	.....	312·74	
Laird	"	320 00	198 40	4,300·43	
Macdonald	"	1,172·50	686 25	448·85	
Meredith	"	131·00	65 50	4,564·15	
Duncan	"	2,940·00	1,911 00	10,700·00	
Kehoe	"	1,639·50	1,065 68	10,935·00	
Thompson	"	297·92	321 41	318·73	
Cobden	"	.....	.....	186·08	
Pennefather	"	995·00	547 00	2,726·59	
Ley	"	.....	.....	6,750·00	
Fisher (T. plot)	"	.....	.....	496·00	
Tilley	"	5,322·50	2,231 00	281·00	
Tupper	"	73·00	36 00	3,353·00	
Fenwick	"	541·50	806 25	8,471·75	
Vankoughnet	"	1,430·00	715 00	7,006·50	
Shingcouicouse (T. plot)	"	.....	.....	269·00	
Bidwell	Manitoulin	410·00	82 00	5,572·00	
Howland	"	200·00	50 00	4,356·00	
Sheguiandah	"	76·00	15 20	8,178·00	
" (T. plot)	"	.....	.....	314 82	
Billings	"	598·00	280 50	4,672·00	
Assiginack	"	533·07	137 00	4,751·93	
Campbell	"	448·00	143 65	7,035·00	
Manitowaning (T. plot)	"	18·04	401 90	28·50	
Carnarvon	"	1,861·00	872 50	9,099·00	
Tehkummah	"	936·00	442 60	6,429·00	
Sandfield	"	.....	.....	7,322·00	
Shaftesbury (T. plot)	"	0·50	25 00	252·48	
Tolmasville "	"	128·47	291 50	1,031·14	

INDIAN LAND STATEMENT showing the number of acres sold during the year ended June 30, 1904, &c.—*Continued.*

PROVINCE OF ONTARIO—*Continued.*

Town or Township.	County or District.	Number of acres of Land sold.	Amount of Sales.	Approximate Quantity remaining unsold.	Remarks.
Allan	Manitoulin	579·00	267 45	3,065·00	
Burpee	"	298·00	71 50	9,515·00	
Barrie Island	"	100·00	20 00	2,117·00	
Gordon	"	100·00	20 00	2,910·00	
Gore Bay (Town)	"	2·90	15 00	4·08	
Mills	"	433·00	170 70	6,240·00	
Cockburn Island	"	2,622·00	1,279 00	26,358·00	
Dawson	"	723·00	190 00	8,964·00	
Robinson	"	984·00	343 40	30,886·00	
Neebing	Thunder Bay	1,772·00	7,677 50	2,006·00	
Sarnia (Town)	Lambton	2·10	870 00	0·24	
Cayuga	Haldimand			297·60	
" (T. plot)	"			122·77	
Dunn	"			1,571 50	
Caledonia	"			53·94	
Seneca	"	139·42	557 68		Railway right of way.
Oneida	"	89·01	2,287 16		" "
Brantford	Brant			135.85	
Bronte (T. Plot)	Halton			85	
Port Credit (T. Plot)	Peel			25	
Deseronto (T. Plot)	Hastings	·20	337 50	6·01	
Shannonville (T. Plot)	"			2·27	
Islands in the River St. Lawrence	Prov. Ontario	2·88	715 00	50·18	
Islands in the Bay of Quinté	"	·40	20 00		Area undetermined.
Islands in the River Otonabee and Lakes	Peterborough	58·43	720 00	1,939·29	
Islands in the Georgian Bay	Parry Sound	34·80	265 00		"
South Baymouth (T. Plot)	Manitoulin	1·50	82 20	140·49	
Meldrum (T. Plot)	"	15·34	535 32	80·88	
Nipissing	Nipissing	6,405·82	10,205 30		
		62,753·60	49,004 50	260,266·95	

PROVINCE OF QUEBEC.

Ouiatchouan	Chicoutimi	1,050·00	420 00	2,941·12	
Dundee	Huntingdon	414·30	1,036 55	5,652·92	
Maniwaki (T. Plot)	Wright	23·54	4,010 31		Area not yet determined.
Maniwaki	"	55·91	75 16		
Temiscamingue	Pontiac	905·06	595 29	14,273·46	
		2,448·81	6,137 31	22,867·50	

PROVINCE OF MANITOBA.

Gambler's reserve	Marquette	656·20	2,216 70	1,291·40	
		656·20	2,216 70	1,291·40	

INDIAN LAND STATEMENT showing the number of acres sold during the year ended June 30, 1904, &c.—*Concluded.*

NORTHWEST TERRITORIES.

Town or Township.	County or District.	Number of acres of Land sold.	Amount of Sales.	Approximate Quantity remaining unsold.	Remarks.
Michel's	Alberta	1,578·80	4,860 30	6,076·56	
Sharphead	"	.....	.....	885·20	
Chacastapasin (less Sugar Island)	Saskatchewan	.....	.....	160·00	
Yellow Quill	Assiniboia	67·21	336 0	.....	Ry. Rt. of way.
		1,646·01	5,196 35	7,121·76	

PROVINCE OF NEW BRUNSWICK.

Tobique	Victoria	369·26	314 76	.....	
Red Bank	Northumberland	6·50	5 20	.....	
Big Hole	"	85·00	68 00	.....	
		460·76	387 96	.....	

General Remarks.

The land sold during the year amounted to 67,965.38 acres, which realized $62,-942.82. The quantity of surrendered land in the hands of the department was, approximately, 291,547·61 acres. The principal outstanding, on account of Indian Lands sold, amounted to $400,498.91, a considerable portion of which has not yet become due.

CENSUS RETURN.

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, with approximate number belonging to each Denomination, as well as the number of Pagans in the Dominion of Canada, by Provinces, for the Year ended June 30, 1904.

PROVINCE OF ONTARIO.

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 15 years inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years Upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Algonquins, Golden Lake	97				97					14	9	12	9	4	5	17	21	3	3
" Renfrew, North	198	*																	
Chippewas of the Thames	484	208		274		2				32	37	39	43	25	22	143	128	6	9
" Walpole Island	605	303		280	20				2	26	25	50	60	36	40	164	160	20	24
" of Sarnia	353	64		289						20	20	29	34	24	29	85	85	10	17
" Kettle and Stony Point	97	20		77						9	10	9	10	8	6	20	19	4	2
" Georgina and Snake Island	114			114						8	7	9	7	6	7	32	29	5	4
" Rama	231			214	17					21	19	16	18	14	16	46	64	8	9
" Saugeen	389	4		266	37		82			27	22	43	42	18	17	90	104	12	14
" Nawash	386	15		240	131					22	20	40	30	30	13	108	110	4	9
" Beausoleil	263			185	78					17	30	31	25	17	17	53	58	5	10
Iroquois and Algonquins of Watha (Gibson)	139			123	14			2		5	15	16	16	9	9	31	31	6	1
Moravians of the Thames	347	144		203						33	32	47	33	22	22	83	71	1	3
Mississaguas of Mud Lake	177			177						18	20	25	9	10	4	45	43		3
" Rice Lake	83			83						9	9	4	6	9	2	21	20		3
" Scugog	34			34						4	1	1	6	1		11	9		1
" Alnwick	230	6		221	3					27	11	25	17	14	7	66	57	3	3
" New Credit	252	11		222		4		15		7	19	24	12	23	11	69	72	7	8
Mohawks of the Bay of Quinté	1,271	1,221	40	10						96	101	124	135	85	69	297	327	16	21
Munsees of the Thames	122	51		71						12	6	9	12	8	3	40	25	3	4
Oneidas of the Thames	770	244		378		132		16		59	64	58	45	44	30	234	172	34	30
Pottawattamies of Walpole Island	181	80		92					9	13	14	24	22	26	24	24	25	4	5

* Stragglers.

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, &c.—*Continued.*

PROVINCE OF ONTARIO—*Continued.*

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 16 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Ojibbewas and Ottawas of Manitoulin and Cockburn Islands at:—																			
Cockburn Island	56	.....	.....	.....	56	.....	.....	.....	.....	4	3	9	7	5	3	11	11	1	2
Sheshegwaning	165	4	.....	.....	161	.....	.....	.....	.....	7	10	19	19	13	7	43	41	2	4
West Bay	325	.....	.....	.....	307	.....	.....	.....	18	16	24	29	34	21	17	84	90	7	3
Sucker Creek	99	82	.....	.....	17	.....	.....	.....	.....	6	5	10	4	7	5	31	26	1	4
South Bay	67	.....	.....	.....	67	.....	.....	.....	.....	4	2	8	10	5	3	10	21	3	1
Sheguiandah	92	75	.....	.....	17	.....	.....	.....	.....	6	7	8	12	5	4	24	19	3	4
Sucker Lake	13	.....	.....	.....	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	6	2	1
Wikwemikong (unceded) / Wikwemikongsing (unceded)	1,080	.....	.....	.....	1,080	.....	.....	.....	.....	147	160	114	127	103	80	158	123	22	46
Obidgewong	6	.....	.....	.....	.....	.....	.....	.....	6	.....	.....	.....	.....	.....	2	2	2	.....	.....
Ojibbewas of Lake Superior at:—																			
Fort William	291	.....	.....	.....	235	.....	.....	.....	56	25	25	28	29	21	13	58	83	5	4
Red Rock or Helen Island	214	38	.....	.....	176	.....	.....	.....	.....	17	20	30	17	13	12	43	55	5	2
Pays Plat	43	.....	.....	.....	43	.....	.....	.....	.....	4	4	8	3	2	3	6	12	...	1
Lake Nipigon, Gull Bay and Island Point	499	16	.....	.....	178	.....	.....	.....	305	52	54	78	57	36	34	75	105	3	5
Pic River	209	5	.....	.....	204	.....	.....	.....	.....	16	20	24	22	16	9	45	52	.....	5
Long Lake	341	65	.....	.....	276	.....	.....	.....	.....	31	38	37	48	14	24	56	78	7	8
Michipicoten and Big Heads	358	175	.....	5	178	.....	.....	.....	.....	46	43	36	34	15	13	74	81	11	5
Thessalon River	143	.....	.....	.....	143	.....	.....	.....	.....	5	7	13	10	11	10	33	43	6	5
Maganettawan	84	.....	.....	.....	84	.....	.....	.....	.....	7	7	5	8	4	9	21	21	1	1
Spanish River No. 1	223	6	.....	.....	217	.....	.....	.....	.....	20	19	31	20	12	10	47	50	7	7
" 2	99	67	.....	.....	32	.....	.....	.....	.....	5	8	9	7	5	7	25	25	4	4
" 3	354	.....	.....	.....	354	.....	.....	.....	.....	26	20	39	53	12	22	85	91	3	3
Whitefish Lake	157	.....	.....	12	145	.....	.....	.....	.....	10	16	17	19	10	4	32	39	6	4
Mississagi River	162	.....	.....	.....	162	.....	.....	.....	.....	14	11	16	11	11	10	35	42	6	6
Point Grondin	51	.....	.....	7	44	.....	.....	.....	.....	2	3	5	6	1	3	11	16	2	2

Serpent River	123				123					9	16	14	8	6	3	26	30	5	6	
French River																				
Tahgaiwinini	194				194					13	12	27	32	12	7	37	48	3	3	
Whitefish River	95	57			38					8	11	12	12	3	7	19	17	1	5	
Parry Island	103			45	39				19	8	6	12	8	8	3	20	36	1	1	
Shawanaga	111			76	35					8	8	11	13	2	11	24	31	2	1	
Henvey Inlet	172			43	129					16	6	19	10	7	7	46	59	1	1	
Lake Nipissing	213				213					27	21	22	28	7	4	44	60			
Temogaming	88				88					10	4	6	5	1	2	23	34	1	2	
Dokis	78				78					6	5	6	9	5	1	18	26	1	1	
Garden River	453	163			290					36	37	45	40	22	34	105	111	11	12	
Batchawana Bay	373	18		8	347					34	29	26	18	27	25	92	101	13	8	
Six Nations on Grand River	4,195	1,490		658		836	16	290	905	288	342	432	416	223	188	1,088	1,044	89	85	
Wyandottes of Anderdon	2	No details.																		
Chippewas and Saulteaux of Treaty No. 3, at:—																				
Hungry Hall No. 1	33	8							25	3	3	5	2	1	1	8	10			
" " 2	15	2			1				12	1	1		2			4	7			
Manitou Rapids No. 1	80								80	6	6	7	6	7	6	19	21		2	
" " 2	31								31	2	4	4	2	1	2	7	5	2	2	
Long Sault No. 1	29	6							23	2	3	1	5	1		8	7	1	1	
" " 2	50	10							40	3	5	3	5	1	3	14	14	1	1	
Little Forks	48	3							45	4	3	3	4	3	6	11	11		3	
Couchiching	143	3			116				24	12	12	13	12	7	7	32	41	4	3	
Stangecoming	48	1							47	4	5	6	11	2	3	8	9			
Nicatchewenin	59								59	5	8	9	9	1	3	10	13		1	
Nickickousemenecanning	45	1			6				38	5	3	7	6	4	2	6	12			
Rivière la Seine	128								128	10	12	13	18	7	7	23	30	6	2	
Lac la Croix	113				3				110	10	6	14	15	4	12	17	29	4	2	
Lac des Mille Lacs	70				1				69	6	2	10	14	4	11	11	11		1	
Kawaiagamot (Sturgeon Lake)	31								31	4	2	6	2		1	7	6	1	2	
Wabigoon	88	9			4				75	4	9	6	11	7	2	19	28	1	1	
Frenchman's Head	135	108			20				7	19	6	13	19	6	9	29	28	5	1	
Lac Seul	365	310			25				30	36	41	48	43	23	10	81	73	6	4	
Wabuskang	55	34			12				9	5	2	5	9	2	4	11	14	1	2	
Grassy Narrows	119	10			72				37	11	13	11	9	7	6	28	30	3	1	
Eagle Lake	69	7			7				55	8	7	9	4	3	2	17	17	2		
The Dalles	69	21			20				28	4	5	12	9	3	3	15	14	1	3	
Islington	159	145	1		1				12	17	11	10	17	8	10	46	37		3	
Rat Portage	70	18			15				37	8	5	9	4	2	1	15	19	3	4	
Northwest Angle No. 37	93	3			2				88	4	7	9	13	7	5	19	25	1	3	
" No. 33	51								51	4	5	4	7	1	2	11	12	1	4	
" No. 34	18								18		1	1	2			5	8		1	
Big Island	159	1	1		2				155	20	11	20	18	12	8	31	34	1	4	
Assabasca	147	1		7	3				136	10	12	12	14	7	11	35	39	3	4	

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, &c.—*Continued.*

PROVINCE OF ONTARIO—*Concluded.*

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 15 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Whitefish Bay	53	1	....	.....	11	...	....	....	41	3	4	3	8	3	2	12	17	1	.....
Shoal Lake No. 40	64	...	8	.....	1	....	....	....	55	10	4	11	5	4	3	10	16	.....	1
" No. 39	80	1	9	.....	1	....	....	....	69	9	9	8	7	2	3	19	21	1	1
Indians at Ignace	71	.....	....	.....	61	....	....	....	10	8	6	9	6	5	1	15	17	3	1
" in unorganized territory at Osnaburg House, Fort Hope, Martin Falls and English River	249	*	....	.....	.....	....	....	....	.....	.. .	.....	.....	.....	.....	.. ..	.....	.....	.....	.....
Total, Ontario	21,191	5,335	59	4,414	6,544	974	98	323	2,995	1,669	1,727	2,141	2,065	1,243	1,097	4,835	5,034	438	493

* Stragglers.

QUEBEC.

Abenakis of St. Francis	327	87	....	.....	228	....	....	....	*12	20	29	39	33	22	19	74	77	5	9
" Becancour	49	.....	....	.....	49	....	....	....	.....	1	...	3	1	4	4	11	20	.....	5
Algonquins of River Desert	386	.....	....	.....	386	....	....	....	.....	20	27	33	42	28	33	92	98	6	7
" Temiscamingue	220	.. .	....	.....	220	....	....	....	.....	18	18	23	28	17	10	42	54	4	6
Amalecites of Viger	103	...	....	.....	103	....	....	....	.....	3	6	4	5	24	22	12	25	2	.....
Hurons of Lorette	455	1	3	.... .	451	....	....	....	.....	50	41	50	46	33	35	96	94	5	5
Iroquois of Caughnawaga	2,074	3	....	47	2,024	....	....	....	.....	229	199	222	166	122	107	485	430	48	66
" St. Regis	1,426	.....	....	154	1,272	...	....	....	.....	162	173	150	143	79	90	273	265	43	48
" Lake of Two Mountains	393	.....	....	291	102	....	....	....	.....	47	34	48	32	12	18	110	81	5	6
Algonquins of " "	68	.....	....	13	55	....	....	....	.....	3	4	4	9	.....	2	25	15	3	3
Micmacs of Maria	93	.....	....	.....	93	....	....	....	.....	13	11	14	7	8	4	15	18	1	2
" Restigouche	486	.....	....	.....	486	....	....	....	....	50	51	44	44	30	22	108	109	11	17

Indians of Labrador Peninsula, viz :—																				
Montagnais and Naskapees at—																				
Bersimis	475				475					42	53	49	49	30	34	107	94	8	9	
Escoumains	43				43					3	2	6	9		1	9	9	2	2	1
Natashquan	76				76					5	4	11	10	7	4	17	17		1	
Godbout	40				40					*										
Grand Romaine	176				176					26	10	25	16	13	14	34	34	2	2	8
Lake St. John	522	46			476					51	47	63	66	34	28	117	101	7	8	
Mingan	235				235					*										
St. Augustine	181				181					11	8	19	27	20	8	38	45	2	3	
Seven Islands and Moisie	377				377					*										
Têtes de Boule Indians of St. Maurice, County of Champlain	203																			
Pontiac, unorganized	631																			
Ottawa County	116																			
Unorganized Territories of Three Rivers and St. Maurice	360																			
Unorganized Territories of Chicoutimi and Saguenay	1,253																			
Quebec County at St. Ambrose	346																			
" Lorette	9																			
" Unorganized	13																			
Charlevoix County at St. Urbain	7																			
" Point au Pic	6																			
Total	11,149	137	3	505	7,548				12	754	717	807	733	483	455	1,665	1,586	154	199	

* No details.

PROVINCE OF NEW BRUNSWICK.

Micmacs of Kent County at :—																				
Big Cove	295				295					23	30	33	33	9	8	78	67	6	8	
Indian Island	32				32					2	1	4	5	2	1	9	7		1	
Buctouche	18				18					1		1	3	1	2	4	4	1	1	
Micmacs of Northumberland County at:—																				
Burnt Church	215				215					13	19	25	27	9	9	57	48	5	3	
Eel Ground	153				153					16	13	13	12	6	5	45	34	5	4	
Red Bank	50				50					3	3	5	2	2	4	14	14	1	2	
Micmacs of Gloucester County at :																				
Bathurst	31				31					4	4	2	4		2	5	7	2	1	
Micmacs of Restigouche County at :—																				
Eel River	71				71					7	8	5	14	1	4	11	18	1	2	
Micmacs of Westmorland County at :—																				
Fort Folly (reserve) and vicinity	68				68					5	5	7	7	6	5	16	14	1	2	
Amalecites of York County at :—																				
St. Mary's	126				126					13	15	12	14	6	4	30	27	2	3	
Kingsclear	121				121					17	10	17	12	6	1	29	23	2	4	

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, &c.—*Continued.*

PROVINCE OF NEW BRUNSWICK—*Concluded.*

Indians.	Census Return	Religion.								Under 6 years.		From 6 to 15 years inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs. inclusive.		From 65 years. Upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Amalecites of Carleton County at:—																			
Woodstock	75	..	....	.....	75	..	....	....	....	10	9	6	5	5	8	15	14	2	1
Amalecites of St. John County	11	.....	....	....	11	....	....	....	..	1	2	1	2	2	..	2	1	.....	.....
Amalecites, Charlotte County	17	.....	...	.....	17	....	....	....	....	1	2	....	3	4	.....	4	3	....	.....
Amalecites, King's County at Apohaqui	18	.....	....	.....	18	....	....	....	.....	1	1	3	2	2	3	3	2	1	..
Micmacs of King's County	59	.....	...	....	59	....	....	....	....	6	7	5	7	6	5	9	10	2	2
Amalecites of Sunbury County at:—																			
Oromocto	72	.....	....	.....	72	....	....	....	....	6	9	6	7	5	2	19	15	1	2
Amalecites of Queen's County at:—																			
Upper Gagetown	26	.....	....	.....	26	..	....	....	....	4	5	3	5	1	1	3	3	1	.....
Amalecites of Victoria County at:—																			
Tobique	187	.....	....	.....	187	...	....	....	..	16	19	11	12	14	7	49	48	5	6
Amalecites of Madawaska County at:—																			
Edmundston	49	..	...	....	.....	49	...	....	....	.....	6	6	9	6	1	4	7	6	2	2
Total	1,694				1,694					155	168	168	182	88	75	409	365	40	44

PROVINCE OF NOVA SCOTIA.

Micmacs of Pictou County at Fisher's Grant and Chapel Island reserves	155	...	..	.....	155	....	....	....	.....	18	11	15	17	8	16	30	29	5	6
Micmacs of Lunenburg County at New Germany (reserve)	59	...	....	.....	59	....	....	....	....	5	6	6	5	6	6	12	11	1	1
Bridgewater	14	.....	...	.....	14	....	....	....	.....	1	.....	3	2	2	2	2	1	1	.....

Lunenburg Town	13				13					1	2	1	1	1	1	2	2	1	1
Gold River (reserve)	9				9									1	1	3	3		1
Micmacs of Queen's County at :—																			
Milton	54				54					2	3	8	8	9	5	8	6	3	2
Mill Village	16				16					1		3	2	2	3	5			
Wild Cat (reserve)	6				6					1	2					1	1		1
Caledonia	8				8						1	1	2		1	1	1	1	
Micmacs of Cumberland County at :—																			
Franklin Manor (reserve) & vicinity	48				48					5	4	7	9	4	4	4	6	3	2
Southampton	5				5					1	2					1	1		
Springhill Junction	27				27					3	3	2	3	1		6	6	1	2
Amherst	16				16					1	2		2	2	3	2	3	1	
Micmacs of King's County at :—																			
Cambridge (reserve)	9				9														
Berwick	9				9														
Brooklyn Street	15				15														
Blue Mountains	6				6														
Greenfield	7				7					5	8	9	12	5	5	18	16		2
Gaspereaux	7				7														
Middleton	20				20														
Aylesford	7				7														
Micmacs of Victoria County at :—																			
Middle River (reserve)	95				95					8	7	11	9	4	6	24	23	2	1
Micmacs of Colchester County at :—																			
Millbrook (reserve)	79				79					5	4	9	12	5	5	18	19	5	3
Carr's Brook	6				6														
Micmacs of Hants County at :—																			
Indian Brook (reserve)	85				85					8	4	12	12	3	2	15	18	6	5
Micmacs of Richmond County at :—																			
Chapel Island (reserve)	116				116					10	7	14	11	5	10	28	26	2	3
Micmacs of Antigonish County at—																			
Summerside	24				24														
Afton (reserve)	79				79														
Pomquet (reserve	50				50					20	25	25	32	12	15	45	30	8	3
Micmacs of Guysborough County at Guysborough	62				62														
Micmacs of Inverness County at—																			
Whycocomagh (reserve)	135				135					13	15	12	17	5	6	32	33		2
Malagawatch (reserve)	43				43					3	3	2	5	1	1	14	13	1	
Micmacs of Digby County at—																			
Bear River (reserve)	90				90					10	13	17	9	7	6	29	22	8	4
Weymouth	35				35														
Micmacs of Cape Breton County at—																			
Cariboo Marsh (reserve)	82				82					4	4	20	7	2	16	14	14		1
North Sydney	32				32					1	4	4	7			7	7		2
Eskasoni (reserve)	122				122					7	8	15	12	12	11	24	31	2	

*No details.

CENSUS RETURN of Resident and Nomadic Indians ; Denominations to which they belong, &c.—*Continued.*

PROVINCE OF NOVA SCOTIA—*Continued.*

Indians.	Census return	Religion.								Under 6 Years.		From 6 to 15 years, inclusive.		From 16 to 20 years, inclusive.		From 21 to 65 years, inclusive.		From 65 years upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Micmacs of Shelburne County at—																			
Jordan River	12	.....	...	.....	12														
Shelburne River	9	.....	...	.....	9														
Sable River	6	.....	...	.....	6		....	....	....	2	1	3	1	3	1	12	7	2	.....
Clyde River	1	.....	...	.....	1														
Barrington River	4	.....	...	.....	4														
Micmacs of Annapolis County	64	.....	...	.....	64	....	....	....	....	7	4	9	7	5	4	10	7	5	6
Micmacs of Halifax County at—																			
Sheet Harbour																			
Moser's River and	33	.....	....	.....	33	....	....	....	....	3	4	3	4	1	3	7	5	1	2
Upper Musquodoboit																			
Cole Harbour (reserve) and Dartmouth	25	.....	....	..	25	....	....	...	.....	3	3	1	1	1	4	6	4	1	1
Wellington. Windsor Junction, Bedford and Elmsdale	116	.....	....	.....	116	....	....	....	..	13	12	12	14	10	12	18	20	2	3
Micmacs of Yarmouth County	83	.....	....	.....	83	....	....	....	.....	*	.....	....	.....	.....	.....	.....	.....	.....	.....
Total	1,998	.....	....	.....	1,998	....	....	....	.....	161	162	224	223	117	149	398	365	62	54

* No details.

PROVINCE OF PRINCE EDWARD ISLAND.

Micmacs of Prince County at—																			
Lennox Island (reserve) and vicinity	227	.....	....	.....	227	....	....	...	....	18	26	23	22	12	5	58	53	4	6
Micmacs of King's County at—																			
Morell (reserve)	65	....	....	...	65	....	....	....	.....	5	6	6	8	3	1	16	16	2	2
Total	292	.....	....	.....	292	....	....	...	.....	23	32	29	30	15	6	74	69	6	8

COWICHAN AGENCY.																				
Sooke	24				24					2	1	3	4		1	6	5		2	
Cheerno	45				45					4	6	5	2		2	9	13		4	
Esquimalt	20			12	8					2	4	2	2	1	1	2	4		2	
Songhees	103			37	66					12	10	10	10	1	1	28	31			
Malahut	10				10							1	2	1		2	3		1	
Tsehum	22				22					1	1	2	1		1	7	8	1		
Panquechin	64				64					5	3	4	3	5	2	17	25			
Tsartlip	66				66					2	4	12	8	5	7	14	14			
Tsawout	98				98					2	4	14	16	5	6	23	28			
Kilpanlus	4				4					1						1	1	1		
Comeakin	67				67					4	2	2	4		2	24	26	1	2	
Clemclemaluts	140			26	114					10	8	21	13	2	3	42	41			
Khenipsin	53			11	42					4	2	1		3	5	19	18		1	
Koksilah	12				12					1		1				5	5			
Quamichan	294			60	200				34	29	23	28	28	8	6	84	88			
Somenos	109			21	88					14	13	10	9	5	7	25	26			
Hellelt	28			9	8				11	3	3	2	3			8	9			
Siccameen	37				37					4	1	2	6	2	2	10	10			
Kulleets	68				68					5	6	6	4	3	3	19	22			
Lyacksum	85				85					7	8	6	13	10	4	18	19			
Llmalche	15				15							5	1			5	4			
Penelakut	149				149					18	8	9	9	5	7	46	44	1	2	
Tsussie	53				53					5	3	6	6	4	4	12	13			
Nanaimo	165				165					19	19	15	13	14	19	28	38			
Snonowas	13			6					7	1		1				4	7			
Qualicum	13			13						1			2	2		4	4			
Comox	58		56		2					3	4	2	3	4	4	20	18			
Galiano Island	32				32					4	2	2	4	4		8	8			
Mayne Island	28				28					3	2	4	4	2	1	6	6			
Discovery Island	31				31					4	3	6	4			6	8			
Cowichan Lake	2			2												1	1			
Total	1,908		56	197	1,603				52	170	140	182	174	86	88	503	547	4	14	
NORTHWEST COAST AGENCY.																				
Massett	354	354								37	40	34	40	12	2	94	84	4	7	
Skidegate	233			233						18	20	14	14	6	3	78	70	5	5	
Kincolith	251	251								16	16	26	34	6	8	62	74	5	4	
Kitten and Andegulay	80								80	6	5	7	5	2	3	24	21	3	4	
Lackalsap	145			145						12	14	13	19	6	2	33	34	6	6	
Kitwintshilth	62								62	4	4	4	5	2	3	19	18	1	2	
Aiyanish	152	152								15	14	15	12	7	5	42	39	2	1	
Kitlacdamax	126								126	4	5	13	11	7	4	38	35	4	5	

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, &c.—*Continued.*

PROVINCE OF BRITISH COLUMBIA—*Continued.*

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 15 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
NORTHWEST COAST AGENCY—*Con.*																			
Port Simpson	703	.....	....	703	.....	....	....	....	.....	55	70	82	75	18	15	185	161	20	22
Metlakatla	192	192	..	....	.....	....	....	....	.....	25	17	23	25	10	2	45	37	1	7
Kitkatla	208	208	....	....	.....	....	....	..	.....	13	13	27	16	14	8	54	52	4	7
Hartley Bay or Kitkahta	79	.....	....	79	.....	....	....	....	.....	8	7	10	9	3	.....	20	21	1	....
China Hat or Kitasoo	77	.....	...	77	.....	....	....	...	.....	7	6	10	9	2	1	22	20	.....	.....
Port Essington, Kitsumkelum & Kitsalas.	191	.....	....	191	.....	....	....	....	.....	14	14	25	27	5	7	49	41	5	4
Kitlope	71	.....	....	.....	.....	....	....	....	71	3	5	11	5	2	1	21	15	4	4
Kitimah	279	.....	....	279	.....	....	....	....	.....	15	14	19	22	9	11	93	81	7	8
Bella Bella	322	.....	....	322	.....	....	....	....	.....	30	30	27	24	16	14	89	79	6	7
Kinisquit	69	.....	....	.....	.....	....	....	....	69	3	2	.....	3	2	2	32	25	.....	....
Bella Coola and Talomey	224	.....	....	20	.....	....	....	....	204	17	16	20	12	5	1	85	58	5	5
Oweekayno	107	.....	....	.....	.....	....	....	....	107	9	4	6	10	2	3	36	33	....	4
Total	3,925	1,157	....	2,049	.....	....	....	....	719	311	316	386	377	136	95	1,121	998	83	102
KOOTENAY AGENCY.																			
St. Mary's	216	.....	....	.....	216	....	....	....	.....	33	32	19	19	10	8	44	49	5	7
Tobacco Plains	61	.....	....	.....	61	....	....	....	.....	3	3	2	10	2	2	17	16	2	4
Lower Columbia Lake	80	.....	....	....	80	....	....	....	.....	8	9	8	10	3	3	17	17	2	3
Lower Kootenay (Flat Bow)	172	.....	....	.....	172	....	....	....	.....	15	18	19	14	7	6	44	44	4	1
Kinbaskets (Shuswap tribe)	56	.....	....	..	56	.	....	....	.....	7	5	11	4	.....	1	9	13	4	2
Arrow Lake (West Kootenay)	24	. ...	....	.....	24	....	....	....	.....	2	1	3	3	....	.....	8	7	.....	.....
Total	609	.. ..	....	.....	609	....	....	....	. ...	68	58	62	60	22	20	139	146	17	17

KAMLOOPS—OKANAGAN AGENCY.																				
Adam's Lake	190				190					15	15	19	19	8	8	54	52			
Ashcroft	51	51								3	4	3	3	2	2	15	15	2	2	
Bonaparte	158				158					15	14	14	14	5	5	42	44	2	3	
Boothroyd	154	154								12	12	9	10	6	5	49	44	3	4	
Boston Bar	150	85			65					11	10	12	13	5	5	46	46	2		
Cook's Ferry	204	204								15	15	14	15	6	7	57	70	2	3	
Deadman's Creek	118				118					11	12	12	11	7	7	24	27	3	4	
Kamloops	244				244					20	20	21	17	9	8	64	64	10	11	
Kanaka Bar	56	56								4	3	5	4	3	2	16	15	2	2	
Lytton	463	463								36	36	39	40	23	26	122	115	13	13	
Nicomen	48	48								4	4	3	5	2	2	14	14			
Nicola (Lower)	366	330			36					24	25	30	28	19	18	102	96	11	13	
" Upper	192				192					17	16	14	14	10	10	48	48	7	8	
Neskainlith	152				152					12	12	11	10	6	6	48	42	3	2	
North Thompson	130				130					11	10	10	11	10	10	34	30	2	2	
Okanagan	238				238					13	13	15	14	11	10	71	79	8	4	
Oregon Jack Creek	20	20								2	2	2	2			5	5	1	1	
Osoyoos	70				70					7	7	5	5	3	2	19	20	1	1	
Penticton	152				152					18	17	18	16	9	8	33	32	1		
Little Lake Shuswap	83				83					10	8	8	9	2	2	20	20	2	2	
Similkameen (Upper)	49				49					4	3	3	3	3	2	14	14	2	1	
" (Lower)	133				133					9	8	12	11	7	7	35	36	6	2	
Siska Flat	32	32									1	2	3	1		14	9	1	1	
Skuppa	17	17								1	1	1	1		1	6	6			
Spallumcheen	144				144					14	14	15	15	8	8	34	32	2	2	
Spuzzum	158	68			90					13	13	13	14	5	6	43	47	2	2	
Cold Water Tower	110				110					10	10	11	10	6	5	24	24	5	5	
Total	3,882	1,528			2,354					311	305	321	317	176	172	1,053	1,046	93	88	
KWAWKEWLTH AGENCY.																				
Kosimo	82								82	1			2	4		35	28	3	9	
Klawitsis	58								58	3	4	3	1	1		22	19	3	2	
Kwatsino	21								21					2		9	7		3	
Kwawshela	36								36	5	2	3	1	1		11	11	1	1	
Kwawkewlth	83	83								11	6	4	4	2		24	22	6	4	
Kwiahkah	25	25								3	2	1	2	1		8	7	1		
Matilpi	55	55								3	3	3	4	1		20	16	2	3	
Mahmalillikulla	111	111								3	7	6	5	2		50	33	2	3	
Nahwahta	96								96	6	2	4	9	6	3	32	31		3	
Nimkish	135	135								13	8	4	6	5	4	50	39	2	4	
Nuwitti	71								71	6	5	1	3	3	3	24	19	3	4	
Tanahtenk	96								96	5	9	5	4	5	3	34	28	3		
Tsawantieneuk	230	230								16	20	23	14	13	2	70	54	8	10	
Wawlitsum	43								43	4	1	5	1	2	2	16	10	2		

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, &c.—*Continued.*

PROVINCE OF BRITISH COLUMBIA—*Continued.*

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 15 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years, upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
KWAWKEWLTH AGENCY—*Con.*																			
Wiwaiaikum	68	.....	....	68	.....	....	....	....	....	4	1	6	2	4	.....	26	23	1	1
Wiwaiaikai	107	.....	...	107	.....	....	....	....	.....	6	5	12	9	5	2	27	30	5	6
Total	1,317	639	....	175	.....	....	....	....	503	89	75	80	67	57	19	458	377	42	53
WEST COAST AGENCY.																			
Ahousaht	262	.....	30	.....	6	...	....	....	226	24	19	30	24	10	5	71	76	2	1
Clayoquot	241	.....	....	100	100	....	....	....	41	11	15	15	19	10	5	67	80	7	12
Checkleset	86	.....	....	.....	60	....	...	...	26	2	12	11	8	.....	5	25	19	3	1
Ehatisaht	95	.....	...	3	....	...	....	....	92	8	6	6	2	2	.....	27	29	2	3
Ucluelet	150	.....	70	.....	.....	....	....	....	80	14	14	17	14	3	2	38	41	4	3
Hesquiat	150	.....	....	.....	150	....	....	....	.....	12	8	16	17	7	2	41	43	3	1
Uchucklesit	38	.....	2	...	7	....	....	....	29	4	4	2	5	.....	1	7	11	2	2
Kelsemaht	76	.....	....	9	9	....	....	....	58	5	4	8	2	3	3	21	20	3	7
Kyuquot	281	.....	....	.....	157	....	....	....	124	14	11	21	17	7	10	84	102	14	1
Matchitlacht	66	.....	....	.....	21	....	....	....	45	1	1	8	5	.....	2	20	26	2	1
Nootka	172	.....	....	.....	82	....	....	....	90	9	6	14	10	3	2	60	61	2	5
Nitinat	202	.....	...	164	....	....	....	....	38	19	12	15	23	6	7	55	56	3	6
Nuchatlitz	62	.....	....	.....	24	....	....	....	38	3	1	1	3	1	5	24	21	2	1
Oiaht	149	.....	100	.....	.....	....	....	....	49	9	10	17	16	4	3	38	44	4	4
Opitchesaht	59	.....	50	.....	2	....	....	....	7	6	3	8	6	2	2	11	19	1	1
Pacheena	58	.....	....	.....	.....	....	....	....	58	4	3	5	5	2	5	15	15	2	2
Toquart	26	.....	5	.....	.....	....	....	....	21	4	2	1	2	.....	2	8	6	1	.....
Seshart	130	.....	80	.....	.....	....	....	....	50	5	6	17	19	5	4	25	36	11	2
Total	2,303	.....	337	276	618	....	....	....	1,072	154	137	212	207	65	65	637	705	68	53

WILLIAMS LAKE AGENCY.																				
Alexandria	54				54					5	5	3	3	3	4	16	10	3	2	
Alkali Lake	162				162					20	20	8	8	11	14	34	35	6	6	
Anaham	223				223					28	20	12	10	15	16	44	40	19	19	
Anderson Lake	66				66					6	6	3	3	7	5	18	16	1	1	
Bridge River	105				105					11	11	4	4	8	9	28	24	3	3	
Canoe Creek	158				158					16	16	7	7	14	16	34	35	6	7	
Cayoosh Creek No. 1	33				33					2	3	2	2	5	4	7	4	2	2	
" " No. 2	13	13								1	1	2		3	2	1	1	1	1	
Clinton	45				45					4	3	2	3	5	5	8	9	3	3	
Dog Creek	14				14					3	2	1		2	2	2	1		1	
Fountain	205				205					21	21	8	9	18	18	46	48	8	8	
High Bar	54				54					8	6	4	2	4	6	5	10	8	1	
Kenim Lake	69				69					4	4	4	4	4	3	22	20	2	2	
Lillooet No. 1	57				57					3	3	4	3	3	4	18	15	2	2	
" No. 2	6	6								1		2		1		1	1			
Pavilion	67				67					4	4	3	4	7	7	14	15	5	4	
Quesnel	64				64					5	6	3	3	4	5	14	15	5	4	
Seton Lake, Mission No. 1	76				76					12	10	6	2	6	4	20	10	3	3	
" Enias No. 2	1				1													1		
" Schloss No. 5	35				35					4	3	1	2	3	4	8	7	1	2	
" Necait No. 6	49				49					4	4	3	3	5	4	12	10	2	2	
Soda Creek	81				81					8	9	4	4	5	5	20	22	2	2	
Stones	104				104					12	15	2	3	8	8	24	26	3	3	
Toosey	62				62					9	9	3	3	6	6	13	10	2	1	
Williams Lake	155				155					15	16	8	8	9	10	38	38	7	6	
Total	1,958	19			1,939					206	197	99	90	156	161	447	422	95	85	
BABINE AND UPPER SKEENA RIVER AGENCY.																				
Kitwangar	154	145							9	7	7	13	13	7	8	45	46	4	4	
Kitwancool	67	57							10	5	5	7	8	4	4	16	16	1	1	
Kitsegukla (old and new village)	91			68				17	6	7	8	8	8	6	6	21	21	3	3	
Getanmax (Hazelton)	241	231							10	7	7	19	21	14	16	75	75	4	3	
Glen Vowell	73							73		6	6	10	11	2	1	17	18	1	1	
Kispiax	216			197					19	7	6	26	26	7	7	64	65	3	5	
Kisgegos	241	170						15	56	9	9	22	21	11	11	71	72	7	8	
Kuldoe	37			11					26	3	3	4	4	2	1	7	9	2	2	
Hagwilget Village	161				161					9	10	11	12	9	8	46	47	5	4	
Moricetown (Lachalsap)	157				157					8	9	12	12	8	9	47	47	3	2	
Fort Babine	151				151					7	7	13	12	9	10	44	45	2	2	
Old Fort Babine	137				137					7	8	12	13	8	8	39	39	2	1	
Yucutce (Portage between Babine and Stuart Lakes)	17				17					1	1	2	2	2	2	4	3			
Thatce	61				61					4	5	6	7	4	4	13	13	2	3	
Pintce	41				41					2	3	4	3	4	3	10	11		1	

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, &c.—*Continued.*

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 15 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
BABINE AND UPPER SKEENA RIVER AGENCY —*Continued.*																			
Grand Rapids	24				24					2	2	3	3	3	2	4	4	1	
Tsisthainli (Lac Trembleur)	17				17					1	1	2	2	2	1	4	3		1
Stuart's Lake Village	195				195					8	9	17	18	12	12	56	55	4	4
Stella	55				55					4	5	7	7	4	4	11	12	1	
Fraser's Lake Village	63				63					4	5	7	8	6	5	13	13	1	1
Stony Creek Village	105				105					5	5	9	10	9	10	27	27	1	2
Fort George Village	121				121					5	6	11	13	6	7	35	36	1	1
Tsistlatho (Black Water)	67				67					3	3	6	6	4	3	21	20		1
McLeod's Lake	96				96					5	5	12	12	9	9	21	22	1	
Fort Grahame (nomadic)	93				93					6	6	10	10	5	6	24	24	1	1
Connolly Lake	119				119					6	6	10	9	10	11	33	32	1	1
Na-anees (two bands north of Connolly Lake (semi-nomadic)	151				151					8	8	13	14	9	9	42	42	4	2
Total	2,951	603		276	1,831			105	136	146	155	276	285	176	177	810	817	55	54
FRASER RIVER AGENCY.																			
Aitchelitz	7			7												3	3		1
Burrard Inlet, No. 3 reserve	31				31					2	2	3	4			10	9		1
Cheam	105			1	104					12	13	19	10	9	8	20	19	2	2
Chehalis	113	5			108					18	14	4	3	5	3	29	30	5	2
Coquitlam	25				25					5	3	3	3	1		5	5		
Douglas	76				76					5	5	6	6	1	3	22	24	2	2
Ewa-woos	27				27					2	2	2	3			5	7	3	3
False Creek	50				50					3	2	3	1	4	1	16	16	2	2
Homalko	89				89					11	14	8	9	4	3	19	19	1	1
Hope	87	2		1	84					5	4	8	7	4	4	26	27	1	1
Katsey	79				79					7	14	7	5		1	21	20	2	2
Klahoose	73				73					10	8	7	7	4	3	15	14	2	3

Kapilano	45				24				21	3	2	1	2	2	1	15	15	2	2
Kwawkwawapilt	16				16					1	1	1		1	1	5	4		2
Langley	39				39					2	2	4	2	1		11	11	3	3
Mission, Burrard Inlet	175				175					30	20	19	12	6	9	36	40	2	1
Musqueam	97			10	84				3	6	7	10	9	7	6	21	20	8	3
Matsqui	44				44					5	6	5	5	2	1	9	8	2	1
New Westminster	63				63					7	8	3	4	5	3	16	15	1	1
Nicomen	17				17					2	2	1	2			4	5		1
Ohamil	56	9		3	44					6	5	3	8	1	1	17	13	2	
Pemberton Meadows	256				256					27	37	28	21	9	7	60	60	4	3
Popkum	14	14								2		4		2	1	2	3		
Semiahmoo	30				30					2	1	3	3	1	1	9	8	1	1
Sechelt	238				238					35	32	18	16	13	11	52	50	5	6
Sumass	50			27	23					4	5	2	2	1	2	16	14	3	1
Scowlitz	52				52					4	6	8	5	4	2	9	10	1	3
Squiahla	15			2	13					1	2	1	3			3	4		1
Skweahm	30				30					3	4	2	4			7	8	1	1
Sliammon	104				104					18	12	14	10		6	19	15	6	4
Squawtits	42	11		11	20					3	4	3	2	5	1	9	9	3	3
Skwamish, Howe Sound	27				8				19	3	1		2			7	9	5	
Skwah	105			4	101					10	8	11	14	6	6	24	19	3	4
Skookum Chuck	97				97					10	9	10	10	3	2	22	20	4	7
Samahquam	74				74					10	9	6	8	4	5	12	14	4	2
Skulkayu	34			28	6					2	4	3	2	1	2	9	9	1	1
Shawahlook	23				23					2	4		3	1	1	6	4	1	1
Seymour Creek	45			3	33				9	2	4	5	5	3	1	11	14		
Skway	26	3			23					2	1	3	1	1	1	8	8	1	
Texas Lake	36	2			34					4	3	2	7	2	3	7	6	1	1
Tsawwassen	45				45					6	3	6	3		3	8	9	4	3
Soowahlie	48			38	10					4	6	3	5	3	3	11	10	1	2
Tyeachten	43	6		18	19					4	4	3	7	1	2	9	10	2	1
Wharnock	23				23					1	1	2	1		1	8	7	1	1
Yakweakwioose	27			4	23					1	2	2	3		2	7	6	1	3
Yale	83	19			64					3	5	5	8	4	5	19	23	9	2
Total	2,881	71		157	2,601				52	305	301	252	247	121	116	679	673	102	85

PROVINCE OF MANITOBA.

Chippewas and Crees of Treaty No. 1 at :–																			
Roseau River, including rapids	196				83				113	11	18	23	17	5	4	52	45	8	13
Swan Lake, including Indian Gardens	104								104	9	8	7	10	5	4	29	26	2	4
Long Plain	133								133	10	8	12	7	9	4	35	44	2	2
St. Peter's	1,109	875			117	73		25	19	102	122	109	102	61	58	286	259	3	7
Brokenhead River	161	120			20				21	12	14	12	13	7	19	45	39		
Fort Alexander	484	224			248				12	62	52	37	35	26	18	122	128	2	2
Sandy Bay	280	17			257				6	30	25	39	34	20	18	55	46	7	6
Total, Treaty No. 1	2,467	1,236			725	73		25	408	236	247	239	218	133	125	624	587	24	34

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, &c.—*Continued.*

PROVINCE OF MANITOBA—*Concluded.*

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 15 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Sioux at Portage la Prairie	155	...	127	.....	.....	...	....	...	28	8	9	20	12	7	7	33	39	8	12
Chippewas and Crees of Treaty No. 2 at :–																			
Lake Manitoba	109	22	....	.....	73	....	....	..	14	8	7	14	13	8	6	22	25	3	3
Ebb and Flow Lake	51	4	....	.....	39	....	....	....	8	3	3	7	6	2	1	14	13	1	1
Fairford	185	150	....	.....	34	....	....	....	1	23	22	15	20	10	16	39	37	3	.....
Little Saskatchewan	118	88	....	.....	.....	30	....	....	....	10	14	14	9	6	5	30	27	.....	3
Lake St. Martin	149	96	....	.....	.....	17	....	....	36	14	21	24	13	4	4	33	32	2	2
Crane River	48	10	....	.....	8	....	....	....	30	7	2	6	2	4	4	11	11	1	....
Waterhen River	47	.....	....	..	47	....	....	....	.....	7	3	5	6	2	2	12	10	.....	.....
Total, Treaty No. 2	707	370	....	.....	201	47	...	...	89	72	72	85	69	36	38	161	155	10	9
Chippewas, Saulteaux and Crees of Treaty No. 3 at :—																			
Buffalo Bay	29	.....	....	.....	....	....	...	....	29	2	.....	1	.....	4	1	10	8	.....	3
Chippewas, Saulteaux and Crees of Treaty No. 5 at :—																			
Black River	62	62	....	.....	...	....	....	....	.....	5	8	6	5	5	3	7	12	7	4
Hollowwater River	103	55	...	.....	18	....	....	....	30	12	9	11	7	7	6	17	20	6	8
Broadvein River	57	.....	....	10	.....	....	....	....	47	4	3	7	4	4	2	8	16	2	7
Loon Straits	.....	.....	....	.....	.....	....	....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fisher River	388	.....	...	388	.....	....	...	...	.....	26	24	47	45	24	24	86	94	8	10
Jackhead River	65	65	....	.....	...	....	....	....	.....	4	2	10	4	6	2	13	17	3	4
Berens River	290	.....	...	270	20	....	....	...	.....	24	16	47	35	26	18	54	59	6	5
Poplar River	152	.....	....	152	...	....	..	....	.....	12	8	20	18	13	10	30	35	3	3
Norway House	525	.....	....	525	.....	....	....	...	.....	30	30	66	63	36	33	105	140	10	12
Cross Lake	331	.....	...	270	61	....	....	....	...	22	18	46	40	24	22	64	85	4	6

Little Grand Rapids (Berens River)	136			36					100	10	7	23	15	13	8	24	29	3	4
Pekangekum	115								115	6	12	13	20	7	8	20	24	2	3
Grand Rapids (Crees and Saulteaux)	125	124							1	17	10	13	17	7	4	25	30	1	1
Chemawawin (Crees)	157	156							1	20	20	18	9	8	6	35	36	2	3
Moose Lake (Crees and Saulteaux)	138	138								10	15	15	18	8	7	25	30	3	7
The Pas	418	392			10			16		40	45	35	42	28	23	84	104	8	9
Shoal Lake (Crees)	71	71								8	6	9	6	7	5	13	13	2	2
Red Earth "	119	68							51	9	11	14	16	5	3	30	25	3	3
Cumberland "	165	153			12					7	16	18	24	6	6	35	44	3	6
Total, Treaty No. 5	3,417	1,284		1,651	121			16	345	266	260	418	388	234	190	675	813	76	97

NORTHWEST TERRITORIES.

Treaty No. 4.																			
BIRTLE AGENCY.																			
Keeseekoowenin	133		92		41					6	8	13	20	8	6	23	42	4	3
Waywayseecappo	169		55		38				76	19	18	24	20	3	4	33	43	3	2
Valley River	75		26		29				20	4	9	8	14	3	3	14	17	1	2
Gambler	16		4		12					2		2	2			4	6		
Rolling River	96		16		4				76	8	7	11	6	3	4	24	29	2	2
Birdtail (Sioux)	67		57	1					9	4	2	5	8		2	19	21	3	3
Oak River "	249	62	3	14					170	13	11	28	29	12	10	62	61	8	15
Oak Lake "	65	1	27						37	4	2	7	10	3	1	14	17	4	3
Turtle Mountain (Sioux)	10								10			2		1	1	2	2	1	1
Total	880	63	280	15	124				398	60	57	100	109	33	31	195	238	26	31
PELLY AGENCY.																			
Coté	255	1	163		23				68	27	21	36	30	6	10	58	58	3	6
Key's	74	31	1		6				36	7	9	9	10	1	3	16	18	1	
Keeseekonse	139	12	16		60				51	11	11	15	21	5	2	31	37	3	3
Total	468	44	180		89				155	45	41	60	61	12	15	105	113	7	9
MOOSE MOUNTAIN AGENCY.																			
White Bear	196	1	42		22				131	17	22	17	14	5	6	53	55	1	6

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, &c.—*Continued.*

NORTHWEST TERRITORIES—*Continued.*

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 15 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
CROOKED LAKE AGENCY.																			
Ochapowace	104	2	9	.....	20	.....	.....	.....	73	10	8	11	7	1	2	30	34	.....	1
Kahkewistahaw	98	5	14	.....	13	.....	.....	.....	66	6	2	9	15	2	2	25	33	1	3
Cowessess	190	6	20	.....	155	.....	.....	.....	9	15	23	24	20	5	10	44	47	1	1
Sakimay	166	3	13	.....	10	.....	.....	.....	140	23	22	20	12	6	4	32	44	2	1
Leech Lake (Little Bone's). Unoccupied.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	558	16	56	.....	198	.....	.....	.....	288	54	55	64	54	14	18	131	158	4	6
ASSINIBOINE AGENCY.																			
Carry-the-kettle	210	.....	34	.....	27	.....	.....	.....	149	15	18	13	11	19	18	44	53	7	12
Sioux at Moosejaw(non-treaty). No details	112	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	322	.....	34	.....	27	.....	.....	.....	149	15	18	13	11	19	18	44	53	7	12
QU'APPELLE AGENCY.																			
Piapot	144	.....	28	.....	87	.....	.....	.....	29	16	11	8	6	11	5	30	49	5	3
Standing Buffalo (Sioux)	211	4	.....	.....	96	.....	.....	.....	111	22	22	17	19	6	7	44	56	10	8
Pasquah	132	.....	20	.....	81	.....	.....	.....	31	10	14	9	19	3	1	27	36	2	11
Muscowpetung	86	2	19	.....	10	.....	.....	.....	55	10	12	5	4	4	3	15	25	6	2
Peepeekeesis	77	.....	6	.....	42	.....	.....	.....	29	6	4	2	8	.....	6	26	19	2	4
Okanase	65	.....	14	.....	20	.....	.....	.....	31	4	12	10	7	2	1	12	12	3	2
Star Blanket	41	.....	2	.....	6	.....	.....	.....	33	6	5	2	4	3	3	7	6	2	3
Little Black Bear	62	.....	8	.....	25	.....	.....	.....	29	4	6	5	9	1	1	18	16	2	.....
Total	818	6	97	.....	367	.....	.....	.....	348	78	86	58	76	30	27	179	219	32	33

TOUCHWOOD HILLS AGENCY.																			
Muscowequan	129	....	....	.....	71	....	....	....	58	11	12	16	8	4	9	29	33	2	5
George Gordon	177	114	....	..	12	....	....	....	51	23	16	7	12	14	11	40	26	9	9
Day Star	71	.....	....	.....	.....	...	....	....	71	6	5	8	10	4	1	14	18	3	2
Poor Man	105	3	....	...	7	....	....	....	95	12	19	5	7	3	3	23	25	3	5
Yellow Quill	308	1	...	.....	1	....	....	....	306	33	28	26	29	34	14	55	64	12	13
Kinistino	62	.....	....	....	.....	....	....	....	62	11	6	5	6	2	4	11	14	3	.....
Total	852	118	....	.....	91	..	....	....	643	96	86	67	72	61	42	172	190	32	34
Pine Creek	221	2	....	....	219	....	....	....	....	28	38	26	25	14	11	36	35	5	3
Shoal River (including Steep Point Rock, Swan Lake, Dog Island, Dawson Bay, ½ mile west of Shoal River)	167	125	....	.....	14	....	....	....	28	23	19	11	21	6	4	29	34	7	13
Total, Treaty No. 4	4,482	375	689	15	1,151	....	...	....	2,140	416	422	416	443	194	172	944	1,095	121	147
Treaty No. 6.																			
DUCK LAKE AGENCY.																			
One Arrow	102	8	....	....	61	....	..	....	33	7	4	23	8	7	4	18	26	1	4
Okemassis	28	4	....	.....	22	....	....	....	2	3	3	1	4	.....	.....	7	10	.....	.....
Beardy	139	.....	15	....	91	...	....	....	33	14	18	16	15	1	9	30	32	2	2
John Smith	144	143	....	....	1	...	....	....	.....	14	11	18	16	8	9	33	31	3	1
James Smith	220	204	....	....	2	....	...	....	14	20	23	26	25	11	14	44	44	8	5
Total	633	359	15	....	177	....	....	....	82	58	59	84	68	27	36	132	143	14	12
CARLETON AGENCY.																			
William Twatt	145	23	5	.....	5	....	....	....	112	15	9	18	6	9	8	36	40	1	3
Petequakey	89	.....	5	.....	84	....	...	....	....	10	8	8	10	5	7	18	19	2	2
Mistawasis	125	4	78	....	43	....	....	....	.....	10	12	11	8	6	5	32	37	2	2
Ahtahkakoop	198	185	2	....	8	....	....	....	3	11	14	29	37	7	8	36	47	3	6
Kapahawekenum	79	.....	....	....	63	....	....	....	16	9	7	6	6	3	5	16	22	2	3
Kenemotayoo	109	62	....	.....	18	....	...	....	29	9	10	14	12	8	2	23	26	2	3
Pelican Lake Indians	63	7	....	.....	2	....	....	....	54	3	10	5	7	6	5	8	14	2	3
Wahspaton (Sioux, non-treaty)	103	.....	33	.	.....	....	....	....	70	1	2	14	16	10	12	21	24	2	1
James Roberts (Lac la Ronge)	501	491	....	.....	10	....	..	...	..	47	54	72	91	24	27	79	95	6	6
William Charles (Montreal Lake)	170	166	....	.....	4	....	...	...	.....	16	17	21	25	7	9	31	40	3	1
Total	1,582	938	123	.....	237	....	....	...	284	131	143	198	218	85	88	300	364	25	30

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, &c.—*Continued.*

NORTHWEST TERRITORIES—*Continued.*

Indians.	Census Return.	Religion.								Under 6 Years.		From 6 to 15 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years. upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
HOBBEMA AGENCY.																			
Samson	352	....	....	239	104	....	....	....	9	51	55	36	28	7	9	70	83	3	10
Ermineskin	163	....	....	....	163	....	....	....	.....	16	21	14	15	5	.....	42	46	1	3
Louis Bull	79	....	....	66	13	....	....	....	.....	12	14	7	6	4	1	16	18	.....	1
Montana (Little Bear)	51	.....	....	14	7	....	....	....	30	7	3	8	2	2	....	11	16	1	1
Total	645	.....	....	319	287	....	....	....	39	86	93	65	51	18	10	139	163	5	15
BATTLEFORD AGENCY.																			
Mosquito, Bear's Head, Lean Man	Stony	73	6	....	....	6	....	....	....	61	7	7	8	4	5	1	15	16	3	7
Red Pheasant	153	106	....	.....	40	....	....	....	7	12	16	14	16	9	6	38	34	4	4
Sweet Grass	84	30	....	....	40	....	....	....	14	7	7	5	4	7	3	17	27	2	5
Poundmaker	108	4	....	....	99	....	....	....	5	12	10	12	12	10	9	21	15	3	4
Little Pine and Lucky Man	106	38	....	.....	41	....	....	....	27	6	6	11	9	9	4	26	27	4	4
Moosomin	108	17	....	.....	36	...	....	....	55	7	9	6	8	7	7	26	29	5	4
Thunderchild	133	46	....	.....	56	...	....	....	31	10	15	10	8	11	7	33	31	4	4
Total	765	247	...	.....	318	....	....	....	200	61	70	66	61	58	37	176	179	25	32
ONION LAKE AGENCY.																			
Seekaskootch	275	59	....	.....	137	....	....	....	79	32	33	21	25	7	11	68	64	2	12
Sweet Grass (attached)	19	18	....	.....	1	....	....	....	.....	2	1	2	.....	.....	....	5	6	1	2
Weemisticooseahwasis	94	9	....	.....	75	....	..	....	10	4	9	9	13	6	2	24	24	.....	3
Ooneepowhayo	101	27	...	.....	57	....	....	....	17	8	8	12	8	3	1	28	26	2	5
Puskeeahkeewein	31	6	...	.....	25	....	....	....	.....	3	1	2	6	..	1	4	9	1	4
Keeheewin	124	2	....	..	122	....	....	....	.....	7	15	15	5	13	5	27	28	2	7

Kinoosayo (Chipewyan)	264	.....	....	.....	264	....	....	....	...	26	30	23	18	11	14	56	74	5	7
Total	908	121	....	.....	681	....	....	....	106	82	97	84	75	40	34	212	231	13	40
EDMONTON AGENCY.																				
Enoch	123	..	....	20	103	....	....	....	.....	12	12	13	12	9	9	25	27	1	3
Michel	93	.....	....	.....	93	....	....	....	.....	12	7	3	9	6	5	19	26	3	3
Alexander	182	.....	....	.....	182	....	....	....	...	23	24	15	9	4	4	45	51	4	3
Joseph	142	....	....	.....	142	....	....	...	.....	17	19	18	18	4	11	24	31	...	...
Paul (White Whale Lake)	154	....	....	131	23	....	....	....	.....	18	17	18	8	5	9	36	38	3	2
Orphans at St. Albert	1	.....	....	....	1	....	....	....	.....	.....	.....	.....	....	1	....	....	....	.....	.....
Total	695	.....	....	151	544	...	....	....	.....	82	79	67	56	29	38	149	173	11	11
SADDLE LAKE AGENCY.																				
Saddle Lake	135	.....	....	94	41	....	....	....	...	11	14	14	9	14	9	29	31	2	2
Blue Quill	109	.....	....	8	101	....	....	....	.....	7	14	9	6	9	8	25	29	1	1
James Seenum	331	.....	....	249	82	....	....	....	.....	46	32	21	19	20	30	74	83	3	3
Lac la Biche	11	.....	....	....	11	....	....	....	.....	2	.....	2	1	2	.....	2	2	.....	.....
Chipewyan	79	.....	....	..	79	....	....	....	.....	9	9	8	4	7	3	15	20	2	2
Beaver Lake	92	.....	....	.....	92	....	....	....	.....	10	10	8	3	4	6	26	23	...	2
Total	757	.....	....	351	406	....	....	....	.....	85	79	62	42	56	56	171	188	8	10
Total, Treaty No. 6	5,985	1,665	138	821	2,650	....	....	....	711	585	620	626	571	313	299	1,279	1,441	101	150
Treaty No. 7.																				
BLACKFOOT AGENCY.																				
Running Rabbit	403	27	....	....	115	....	....	....	261	26	18	38	16	40	18	111	112	5	19
Yellow Horse	442	86	....	.....	60	....	....	....	296	29	28	40	21	56	29	112	106	5	16
Total	845	113	....	....	175	....	....	....	557	55	46	78	37	96	47	223	218	10	35
SARCEE AGENCY.																				
Bull Head	206	31	....	.....	10	....	....	....	165	15	12	15	13	6	10	57	62	6	10
STONY AGENCY.																				
Stony Reserve	641	.....	....	641	....	....	....	....	.....	106	69	76	80	58	45	78	122	3	4
PEIGAN AGENCY.																				
Peigans	506	66	....	.....	142	....	....	....	298	44	53	49	46	24	18	122	129	5	16
BLOOD AGENCY.																				
Bloods	1,196	129	...	..	109	...	....	....	958	107	81	93	69	81	63	276	387	18	21
Total, Treaty No. 7	3,394	339	....	641	436	....	....	....	1,978	327	261	311	245	265	183	756	918	42	86

CENSUS RETURN of Resident and Nomadic Indians; denominations to which they belong, with approximate number belonging to each denomination, as well as the number of Pagans in the Dominion of Canada, by Provinces, for the year ended June 30, 1904.

NORTHWEST TERRITORIES—*Concluded.*

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 15 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalist.	Other Christian beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Treaty No. 8.																			
Crees & Chipewyans at Ft. McMurray	134	No details.																	
Chipewyans at Fond du Lac	368																		
Beavers at Dunvegan	130																		
Crees at Little Red River	75																		
Chipewyans at Fort Chipewyan	331																		
Crees at Fort Chipewyan	197																		
Chipewyans at Smith Landing	256																		
Crees at Wabiscow	199																		
Crees at Peace River Landing	56																		
Beavers at Vermilion, Peace River	131																		
Crees at Vermilion, Peace River	121																		
Crees at Lesser Slave Lake	313																		
Crees at Sturgeon Lake	152																		
Beavers at Fort St. John	81																		
Stragglers at Fort McMurray	18																		
Crees at Whitefish Lake	81																		
Slaves of Upper Hay River	247																		
Slaves of Lower Hay River	115																		
Chipewyans at Fort Resolution	112																		
Yellowknives at Fort Resolution	214																		
Dogribs at Fort Resolution	198																		
Stragglers at Athabaska Landing	6																		
Total	3,535																		
Athabaska District	1,239																		
Mackenzie "	4,149																		
Yukon Territory	3,302																		
Keewatin	5,834																		

RECAPITULATION.

PROVINCE OF BRITISH COLUMBIA.

West Coast Agency	2,303	....	337	276	618	.....	....	....	1,072	154	137	212	207	65	65	637	705	68	53
Fraser River "	2,881	71	.....	157	2,601	.....	....	..	52	305	301	252	247	121	116	679	673	102	85
Babine and Upper Skeena River Ag'y	2,951	603	.....	276	1,831	.....	....	105	136	146	155	276	285	176	177	810	817	55	54
Williams Lake Agency	1,958	19	....	.....	1,939	.....	....	....	.....	206	197	99	90	156	161	447	422	95	85
Northwest Coast "	3,925	1,157	.....	2,049	.....	.....	...	..	719	311	316	386	377	136	95	1,121	998	83	102
Kootenay "	609	....	.....	.....	609	....	....	....	.....	68	58	62	60	22	20	139	146	17	17
Cowichan "	1,908	....	56	197	1,603	.....	....	....	52	170	140	182	174	86	88	503	547	4	14
Kamloops-Okanagan Agency	3,882	1,528	.....	.....	2,354	....	....	....	.....	311	305	321	317	176	172	1,053	1,046	93	88
Kwawkewlth	1,317	639	.....	175	.....	.....	...	....	503	89	75	80	67	57	19	458	377	42	53
Nomadic Indians, about	3,500	.....	.....	.....	.....	.....	....	....	.....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....
Grand total	25,234	4,017	393	3,130	11,555	.....	....	105	2,534	1,760	1,684	1,870	1,824	995	913	5,847	5,731	559	551

PROVINCE OF MANITOBA.

Treaty No. 1	2,467	1,236	.....	...	725	73	...	25	408	236	247	239	218	133	125	624	587	24	34
" 2	707	370	.....	...	201	47	...	...	89	72	72	85	69	36	38	161	155	10	9
" 3	29	.....	.....	.....	.....	.....	.....	...	29	2	....	1	.....	4	1	10	8	.....	3
" 5	3,417	1,284	....	1,651	121	.....	....	16	345	266	260	418	388	234	190	675	813	76	97
Sioux at Portage la Prairie	155	....	127	.....	.....	.....	...	....	28	8	9	20	12	7	7	33	39	8	12
Grand total	6,775	2,890	127	1,651	1,047	120	....	41	899	584	588	763	687	414	361	1,503	1,602	118	155
Treaty No. 4	4,482	375	689	15	1,151	.....	....	....	2,140	416	422	416	443	194	172	944	1,095	121	147
" 6	5,985	1,665	138	821	2,650	.....	....	....	711	585	620	626	571	313	299	1,279	1,441	101	150
" 7	3,394	339	....	641	436	.....	...	....	1,978	327	261	311	245	265	183	756	918	42	86
" 8	3,535	.....	.....	.....	.....	.....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Non-treaty Indians, where no agents	165	....	.....	.....	.....	.....	....	....	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....
Grand total	17,561	2,379	827	1,477	4,237	.....	....	....	4,829	1,328	1,303	1,353	1,259	772	654	2,979	3,454	264	383
Ungava	5,060	No details.																	
Franklin District (formerly Arctic Coast, Esquimaux)	2,500																		

GRAND RECAPITULATION.

CENSUS RETURN of Resident and Nomadic Indians; Denominations to which they belong, with approximate number belonging to each Denomination; as well as the number of Pagans in the Dominion of Canada, by Provinces, for the year ended June 30, 1904.

Indians.	Census Return.	Religion.								Under 6 years.		From 6 to 15 yrs., inclusive.		From 16 to 20 yrs., inclusive.		From 21 to 65 yrs., inclusive.		From 65 years upwards.	
		Anglican.	Presbyterian.	Methodist.	Roman Catholic.	Baptist.	Congregationalists.	Other Christian Beliefs.	Pagan.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Ontario	21,191	5,335	59	4,414	6,544	974	98	323	2,995	1,669	1,727	2,141	2,065	1,243	1,097	4,835	5,034	438	493
Quebec	11,149	137	3	505	7,548	.....	....	....	12	754	717	807	733	483	455	1,665	1,586	154	199
Nova Scotia	1,998	.....	.....	.....	1,998	.....	....	....	.....	161	162	224	223	117	149	398	365	62	54
New Brunswick	1,694	.....	.....	.....	1,694	.....	....	....	.....	155	168	168	182	88	75	409	365	40	44
Prince Edward Island	292	.....	.....	.....	292	.....	....	....	.....	23	32	29	30	15	6	74	69	6	8
British Columbia	25,234	4,017	393	3,130	11,555	.....	....	105	2,534	1,760	1,684	1,870	1,824	995	913	5,847	5,731	559	551
Manitoba	6,775	2,890	127	1,651	1,047	120	....	41	899	584	588	763	687	414	361	1,503	1,602	118	155
Northwest Territories	17,561	2,379	827	1,477	4,237	.....	....	....	4,829	1,328	1,303	1,353	1,259	772	654	2,979	3,454	264	383
Ungava	*5,060																		
Franklin Dist. (formerly Arctic coast)	*2,500																		
Arthabaska District	*1,239																		
Mackenzie "	*4,149																		
Yukon Territory	*3,302																		
Keewatin	*5,834																		
Grand total	107,978	14,758	1,409	11,177	34,915	1,094	98	469	11,269	6,434	6,381	7,355	7,003	4,127	3,710	17,710	18,206	1,641	1,887

*No details.

AGRICULTURAL AND INDUSTRIAL STATISTICS

REALTY OF INDIANS.

Agency.	Land.		Public Buildings, Property of the Band.						Private Fencing and Buildings.				
	Cleared, including natural pasturage.	Cultivated, including made pasturage.	Churches.	Council Houses.	School Houses.	Driving Sheds.	Other Buildings.	Ferries.	Acres Fenced.	Dwellings, Stone.	Dwellings, Brick.	Dwellings, Frame.	Dwellings, Log.
Ontario.	Acres.	Acres.											
Grand River Superintendency—Six Nations	23,974	10,722	14	1	11	9	1	.....	42,696	1	16	208	370
Parry Sound Superintendency	1,260	.....	6	1	5	1	7	...	1,260	.....	.....	23	90
New Credit (Mississaguas) Agency	1,900	3,750	2	1	1	2	3	..	5,700	.....	3	47	16
Walpole Island Agency	9,180	1,730	2	1	3	2	2	4	3,071	.....	.....	86	77
Sarnia "	2,259	1,563	4	2	3	2	1	.....	5,435	.....	3	121	15
Caradoc "	4,334	10,637	...	3	6	1	13	.....	14,314	.....	6	148	147
Moravian "	1,194	966	.....	1	1	.....	.....	.....	2,240	....	1	28	61
Manitowaning "	1,502	3,724	7	3	9	2	.....	.....	2,275	.....	...	29	280
Gore Bay "	.....	.....	...	...	.....	...	.....	.....	.....	.....	.....	..	.....
Thessalon "	350	269	3	.....	5	....	.....	...	269	....	.....	28	66
Sault Ste. Marie "	1,566	7,764	6	1	2	.....	1	.....	2,497	....	....	37	123
Port Arthur "	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	.....	.....	.....
Golden Lake "	547	38	1	.....	1	..	.....	.....	238	.....	.....	.....	19
Tyendinaga "	15,700	15,000	3	1	4	2	1	.....	15,000	.....	3	154	6
Lake Simcoe "	744	548	1	1	1	1	1	.....	548	.....	.....	14	19
Cape Croker "	3,500	1,500	2	1	3	2	4	.....	800	3	.....	40	60
Saugeen "	4,000	1,120	4	1	3	3	9	.....	900	.....	1	60	40
Alnwick "	.....	2,499	1	1	1	1	4	.....	2,440	.....	...	47	9
Mud Lake "	300	250	1	1	1	2	6	.....	604	.....	1	23	12
Rice Lake "	885	575	1	1	1	1	...	.....	762	.....	.....	11	14
Rama "	400	755	1	1	1	2	3	.....	945	.....	.....	48	30
Christian Island "	1,100	775	2	1	1	1	.....	.....	775	.....	.....	5	45
Scugog "	740	.....	1	...	.....	1	....	.....	800	.....	.....	9	1
Indians of Christian Island band residing on Manitoulin Island	.....	.....	.....	.....	.....	.....	.....	....	30	.....	.....	.....	8
Rat Portage Agency	1,421	111	...	...	4	.....	.....	.....	.....	.....	.....	.....	131
Fort Frances "	215	144	1	....	6	.....	.....	.....	177	.....	.....	.....	113
Savanne "	1,479	87	1	....	7	....	.....	....	28	.....	.....	.....	133

Sturgeon Falls "	365	.....	2	.....	1	.....	.....	.....	252	.....	.....	7	33
Total	78,915	64,527	66	23	81	35	56	4	104,056	4	34	1,173	1,918
QUEBEC.													
Lake of Two Mountains Agency	288	1,569	1	.....	1	2	.....	.....	1,029	2	....	72	9
Caughnawaga "	3,434	4,803	1	1	2	.....	5	.....	2,613	59	2	383	48
St. Regis "	2,669	2,958	2	1	4	....	11	.....	1,008	....	.....	150	47
Viger "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
St. Francis "	157	368	3	1	2	.....	2	.....	170	...	2	78	1
Lake St. John "	447	821	2	....	1	....	2	.....	1,055	.....	.....	34	17
Maria "	47	136	1	.....	1	...	1	.....	136	.....	...	18	3
Restigouche "	680	680	1	1	1	.....	.....	.....	680	.....	....	69	21
River Desert "	755	45	.....	.....	3	1	.....	.....	351	.....	.....	1	25
Jeune Lorette "	280	200	1	....	1	.....	.....	.....	1,230	1	1	72	....
Becancour "	.....	.....	.....	...	.....	.....	.....	.....	.....	.....	.....	.....	...
Timiskaming "	150	268	....	.....	1	.....	.....	.....	128	.....	.....	6	27
Bersimis "	365	45	2	.....	.....	.....	.....	.....	16	....	...	37	45
Mingan "	.....	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	9,272	11,893	14	4	17	3	21	.....	8,416	62	5	920	263

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

REALTY OF INDIANS

Agency.	Private Buildings.									
	Shanties.	Barns.	Horse Stables.	Driving Houses.	Cattle Stables.	Pig Sties.	Store Houses.	Root Houses.	Milk Houses.	Corn Cribs.
Ontario.										
Grand River Superintendency—Six Nations	27	187	356	80	182	177	61	43	113	61
Parry Sound Superintendency	9	43	.....	.....	32	3	7	....	.....	.....
New Credit (Mississaguas) Agency	5	24	28	9	8	14	2	2	11	1
Walpole Island Agency	....	4	43	1	1	30	44	1	4	49
Sarnia "	5	29	83	7	24	38	31	13	18	31
Caradoc "	17	44	122	25	56	46	48	11	26	40
Moravian "	3	11	52	3	20	29	14	13	8	24
Manitowaning "	59	74	188	8	65	159	41	142	4	16
Gore Bay "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thessalon "	26	12	33	.....	15	7	3	6	3	.....
Sault Ste. Marie "	26	52	54	2	39	23	18	29	10	.....
Port Arthur "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Golden Lake "	1	4	8	6	5	5	1	3	2	.....
Tyendinaga "	2	110	152	64	160	56	1	24	10	30
Lake Simcoe "	1	8	18	2	12	10	4	4	5	.....
Cape Croker "	3	50	56	1	32	12	1	4	10	.....
Saugeen "	2	25	75	10	20	30	1	5	.....	.....
Alnwick "	2	17	20	2	3	1	1	.....	1	.....
Mud Lake "	1	12	10	2	11	4	.....	2	2	.....
Rice Lake "	.....	10	11	.....	7	7	.....	5	1	....
Rama "	1	31	30	5	3	12	28	10	2	...
Christian Island "	3	12	35	8	25	20	4	15	10	15
Scugog "	1	4	5	....	.....	.....	.....	.....	.....	.....
Indians of Christian Island band residing on Manitoulin Island	.....	3	5	.....	2	1	.....	5	.....	.....
Rat Portage Agency	.....	.....	27	...	17	....	13	....	.. .	.....
Fort Frances "	32	.....	40	.....	18	.....	.....	.....	.....	.....
Savanne "	.....	.....	1	.....	11	.....	.....	8	.....	.....
Sturgeon Falls "	37	17	24	.....	.....	3	26	.....	. .	.....
Total	263	783	1,476	235	768	687	349	345	240	267

QUEBEC.										
Lake of Two Mountains Agency	2	33	33	26	13	24	14	3	21	7
Caughnawaga Agency	6	119	316	.....	...	112	12	2	10	14
St. Regis "	.....	106	52	.....	45	46	2	2	.....	58
Viger "	.....	.....	...	.....	.....	.....	.....	.....	.....	.....
St. Francis "	.....	12	9	6	14	6	24	1	12	1
Lake St. John "	2	13	14	3	.....	12	1	7	16	.....
Maria "	.....	16	8	8	19	16	6	6	6	.....
Restigouche "	5	62	24	.....	63	44	8	.....	13	.....
River Desert "	30	15	18	2	11	4	3	7	5	.....
Jeune Lorette "	.....	8	7	.....	5	10	.....	.....	.....	.....
Becancour "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Timiskaming "	13	8	8	.....	8	3	14	14	1	.....
Bersimis "	5	.....	2	.....	4	.....	.....	1	.....	.....
Mingan "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	63	392	491	45	182	277	84	43	84	80

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS.

Agency.	Agricultural Implements, Vehicles, &c.										
	Ploughs.	Harrows.	Seed Drills.	Cultivators.	Land Rollers.	Mowers.	Reapers.	Horse Rakes.	Fanning Mills.	Threshing Machines.	Tool Chests.
Ontario.											
Grand River Superintendency—Six Nations	340	269	69	210	82	149	106	129	182	5	47
Parry Sound Superintendency	29	25	....	.....	.....	3	1	.....	5	.....	.....
New Credit (Mississaguas) Agency	36	23	7	18	6	15	9	10	15	1	2
Walpole Island Agency	78	57	6	69	6	35	9	30	34	1	1
Sarnia "	82	76	17	46	5	38	20	33	49	1	15
Caradoc "	144	137	28	115	21	54	44	44	58	2	77
Moravian "	69	63	9	64	3	17	6	16	11	.....	3
Manitowaning "	180	103	.....	5	.....	27	8	24	12	3	51
Gore Bay "	.....	.....	....	....	.....	.....	.....	.....	.....	....	.....
Thessalon "	14	13	...	...	.....	.....	.....	.....	...	....	.....
Sault Ste. Marie "	51	48	....	3	...	7	.....	11	13	1	6
Port Arthur "	.....	.....	.....	....	.....	.....	.....	.....	...	....	.....
Golden Lake "	6	5	.....	...	.....	.....	.....	.....	...	.....	.....
Tyendinaga "	127	130	40	95	37	40	32	70	54	2	42
Lake Simcoe "	15	11	1	3	.....	3	1	2	4	1	8
Cape Croker "	48	35	2	6	3	8	1	22	21	1	4
Saugeen "	65	40	.....	6	.....	9	2	16	5	....	50
Alnwick "	25	15	5	9	4	4	5	4	8	.....	1
Mud Lake "	13	10	3	3	2	1	2	1	5	1	1
Rice Lake "	10	7	2	1	1	2	2	2	5	.....	1
Rama "	21	18	1	1	1	1	1	2	2	....	4
Christian Island "	60	45	5	6	7	3	1	5	4	1	6
Scugog "	8	3	2	1	...	1	2	.....	5	.....	1
Indians of Christian Island band residing on Manitoulin Island	4	3	.....	.....	.....	.....	.....	.....	1	....	2
Rat Portage Agency	10	8	.....	.....	.....	....	....	....	....	.....	.....
Fort Frances "	27	15	.....	.....	.....	....	.....	.....	...	.....	.....
Savanne "	4	4	.....	.....	.....	...	.....	.....	...	.....	.....
Sturgeon Falls "	10	4	.....	.....	.....	.....	.....	.....	1	....	10
Total	1,476	1,167	197	661	178	417	252	421	494	20	332

QUEBEC.											
Lake of Two Mountains Agency	44	50	2	13	2	11	5	14	9	6	7
Caughnawaga Agency	262	202	17	30	10	32	8	38	20	14	25
St. Regis "	112	90	6	85	4	52	16	50	8	6	60
Viger "	.....	.....	....	.....	.....	...	....	.....	.....	.....	.....
St. Francis "	6	7	....	.....	.....	....	.....	.....	.....	.....	.....
Lake St. John "	21	30	.....	.....	2	4	1	7	9	5	1
Maria "	4	5	.....	2	2	.....	...	2	....	1	3
Restigouche "	36	29	....	8	4	6	2	16	4	2	8
River Desert "	25	25	1	...	3	5	1	5	4	1	0
Jeune Lorette "	4	5	....	1	.....	.....	.....	1	.....	.....	.....
Becancourt "	.....	.....	.....	.....	.....	.....	.....	.. ..	.....	.....	.....
Timiskaming "	10	12	.....	.....	1	2	....	2	1	1	3
Bersimis "	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Mingan "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	525	455	26	139	28	112	33	135	55	36	107

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS.—*Continued.*

Agency.	Agricultural Implements, Vehicles, &c.							Value of Implements and Vehicles.
	Other Implements.	Wagons.	Carts.	Sleighs, Draught.	Sleighs, Driving.	Democrat Wagons.	Buggies and Road Carts.	
ONTARIO.								$ cts.
Grand River Superintendency—Six Nations	2,222	261	65	179	106	112	202	122,054 00
Parry Sound Superintendency	400	12	1	16	12	1	1	2,165 00
New Credit (Mississaguas) Agency	160	23	2	19	13	11	26	4,200 00
Walpole Island Agency	475	56	4	44	4	44	76	8,070 00
Sarnia "	799	86	.....	65	14	10	82	13,244 00
Caradoc "	2,728	106	.....	84	51	45	143	17,038 70
Moravian "	486	40	.....	28	10	9	43	8,000 00
Manitowaning "	1,620	127	10	152	143	13	24	4,045 00
Gore Bay "	.....	.....	.....	.....	.....	.....	.....	.....
Thessalon "	522	.....	.....	10	36	.....	.....	927 00
Sault Ste. Marie "	1,723	20	6	75	12	3	4	4,760 00
Port Arthur "	.....	.....	.....	.....	.....	.....	.....	.....
Golden Lake "	.....	2	.....	5	3	2	4	500 00
Tyendinaga "	5,000	117	4	107	40	70	54	26,500 00
Lake Simcoe "	110	5	.....	8	8	2	2	1,000 00
Cape Croker "	550	40	2	24	20	18	16	9,301 00
Saugeen "	1,500	34	.....	50	40	26	63	5,600 00
Alnwick "	378	15	2	14	16	10	16	3,530 65
Mud Lake "	150	6	1	8	5	5	4	1,425 00
Rice Lake "	70	5	1	5	2	.....	5	1,300 00
Rama "	130	5	.....	6	7	1	9	900 00
Christian Island "	150	25	2	25	6	4	5	3,000 00
Scugog "	69	3	.....	3	3	3	4	665 00
Indians of Christian Island band residing on Manitoulin Island	52	1	1	3	3	.....	.....	250 00
Rat Portage Agency	338	.....	.....	.....	.....	.....	.....	321 25
Fort Frances "	475	.....	.....	6	6	.....	.....	1,075 00

Savanne Agency	338	.....	.....	.....	.....	.....	.....	164 50
Sturgeon Falls Agency	.....	3	3	12	5	.....	.....	795 00
Total..	20,445	992	104	948	565	389	783	240,831 10
QUEBEC.								
Lake of Two Mountains Agency	426	12	50	40	36	8	40	8,393 50
Caughnawaga Agency	550	150	188	204	58	.....	84	8,375 00
St. Regis "	270	68	25	79	53	18	68	9,100 00
Viger "	.....	.....	.....	.....	.....	.....	.....	.....
St. Francis "	260	10	.....	12	10	.....	8	975 00
Lake St. John "	.....	18	23	29	28	21	7	4,065 00
Maria "	120	5	7	5	6	.....	.....	1,100 00
Restigouche "	196	10	11	35	11	4	12	4,586 00
River Desert "	324	10	12	25	6	6	19	4,668 00
Jeune Lorette "	200	3	5	8	3	1	2	250 00
Becancour "	.....	.....	.....	.....	.....	.....	.....	.....
Timiskaming "	230	3	1	8	.....	.....	.....	1,220 00
Bersimis "	.....	2	4	2	.....	.....	2	91 00
Mingan "	.....	.....	.....	.....	.....	.....	.....	.....
Total..	2,576	291	326	447	211	58	242	42,817 50

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued*

PERSONALTY OF INDIANS—*Continued.*

Agency.	Live Stock and Poultry.											
	Horses.			Cattle.					Other Stock.			
	Stallions and Geldings.	Mares.	Colts, Fillies and Foals.	Bulls.	Oxen work.	Steers.	Cows Milch.	Young stock.	Sheep.	Lambs.	Boars Breeding.	
ONTARIO.												
Grand River Superintendency—Six Nations	255	277	206	13	2	138	659	743	132	44	20	
Parry Sound Superintendency	30	21	9	8	10	15	82	104	31	.....	.....	
New Credit (Mississaguas) Agency	29	43	14	1	.....	54	80	58	7	3	2	
Walpole Island "	90	110	64	14	4	.....	163	214	20	.....	40	
Sarnia "	86	78	24	6	.....	34	106	88	.....	.....	4	
Caradoc "	94	150	67	5	.....	54	162	213	43	35	3	
Moravian "	53	80	41	4	.....	20	61	83	.....	.....	7	
Manitowaning "	153	162	71	5	8	75	82	127	25	20	11	
Gore Bay "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Thessalon "	39	33	2	5	.....	14	26	43	.....	.....	.....	
Sault Ste. Marie "	54	47	26	9	30	36	102	125	.....	.....	9	
Port Arthur "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Golden Lake "	.....	4	3	3	.....	14	12	9	1	.....	.....	
Tyendinaga "	218	211	40	35	.....	150	510	700	111	70	15	
Lake Simcoe "	4	12	4	1	.....	6	18	20	14	3	1	
Cape Croker "	60	40	20	2	.....	25	50	40	50	40	2	
Saugeen "	22	65	42	.....	.....	25	39	47	.....	.....	7	
Alnwick "	16	18	4	2	.....	3	41	39	.....	.....	.....	
Mud Lake "	7	12	8	2	.....	15	24	22	.....	.....	1	
Rice Lake "	11	9	8	1	.....	.....	18	12	.....	.....	1	
Rama "	3	12	4	.....	.....	2	7	8	.....	.....	.....	
Christian Island "	60	65	22	1	4	40	65	70	30	15	20	
Scugog "	3	3	4	.....	.....	.....	2	1	.....	.....	.....	
Indians of Christian Island band residing on Manitoulin Island	4	3	.....	.....	1	.....	.....	2	.....	.....	.....	
Rat Portage Agency	67	3	.....	3	20	.....	20	11	.....	.....	.....	
Fort Frances "	31	30	12	8	10	5	19	16	.....	.....	.....	
Savanne "	4	4	2	7	1	1	11	4	.....	.....	.....	

Sturgeon Falls "	17	21	12	9	.....	8	66	56	.....	.....	....
Total	1,410	1,513	709	144	90	734	2,425	2,855	464	230	143
QUEBEC.											
Lake of Two Mountains Agency	6	72	36	14	. .	12	134	153	35	30	4
Caughnawaga "	23	82	134	19	.....	23	417	304	10	16	6
St. Regis "	75	95	79	17	.....	15	210	184	.....	.....	12
Viger "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Francis "	3	7	.....	1	.....	.....	34	32	.....	.....	1
Lake St. John "	15	21	5	6	4	28	64	48	4	.....	2
Maria "	.....	3	6	1	..	2	12	10	4	.....	.....
Restigouche "	16	20	9	6	3	8	41	85	20	15	7
River Desert "	29	10	2	4	.....	6	46	20	25	11	4
Jeune Lorette "	.....	3	.....	1	.....	1	15	.....	.....	.....	.....
Becancour "	.....	.....	.....	...	...	.....	.....	.....	.....	.....	.....
Timiskaming "	5	4	.....	1	.....	.....	11	18	2	.....	.....
Bersimis "	3	.....	.....	1	.....	.....	6	2	.....	.....	.....
Mingan "	.....	.....	.....	...	.....	...	.....	.....	.....	.....	.....
Total	175	317	271	71	7	95	990	856	100	72	36

AGRICULTURAL AND INDUSTRIAL STATISTICS.—*Continued.*

PERSONALTY OF INDIANS—*Continued.*

Agency.	Live Stock and Poultry.—*Continued.*							General Effects.		
	Other Stock.—*Con.*		Poultry.							
	Sows, Breeding.	Pigs.	Turkeys.	Geese.	Ducks.	Cocks and Hens.	Value of Live Stock and Poultry.	Sail Boats.	Row Boats.	Canoes.
ONTARIO.							$ cts.			
Grand River Superintendency—Six Nations	569	1,403	475	144	658	11,050	66,000 00	.....	1	6
Parry Sound Superintendency	.....	38	.....	.....	.....	575	9,350 00	21	18	36
New Credit (Mississaguas) Agency	16	161	49	21	25	867	7,425 00	.....	.....	.....
Walpole Island "	247	399	178	103	204	2,435	14,846 00	.....	33	28
Sarnia "	25	123	117	.....	86	2,081	12,850 00	.....	42	1
Caradoc "	73	279	248	80	68	5,651	28,864 35	.....	1	.....
Moravian "	76	275	50	94	60	425	15,000 00	.....	4	.....
Manitowaning "	122	741	.....	.....	.....	2,350	17,600 00	106	24	35
Gore Bay "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thessalon "	27	102	.....	.....	.....	382	6,727 00	32	31	65
Sault Ste. Marie "	33	127	102	195	156	2,000	10,565 00	58	38	110
Port Arthur "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Golden Lake "	2	12	.....	.....	.....	65	1,198 00	.....	.....	14
Tyendinaga "	90	510	700	300	500	5,000	55,000 00	5	40	2
Lake Simcoe "	10	62	90	.....	.....	264	3,150 00	2	18	2
Cape Croker "	45	400	25	10	30	500	15,646 75	12	25	6
Saugeen "	64	143	67	33	25	275	7,185 00	.....	3	2
Alnwick "	19	80	6	19	33	701	5,866 50	1	.....	22
Mud Lake "	3	25	30	20	40	300	4,110 00	.....	.....	52
Rice Lake "	3	50	50	20	50	200	2,465 00	.....	.....	14
Rama "	5	39	60	52	68	120	1,000 00	.....	8	57
Christian Island "	75	225	40	50	.....	800	6,000 00	30	40	30
Scugog "	8	12	.....	.....	2	102	662 25	.....	2	8
Indians of Christian Island band residing on Manitoulin Island	3	16	.....	.....	.....	50	400 00	4	.....	.....
Rat Portage Agency	.....	.....	.....	.....	.....	.....	2,875 00	3	14	395

Fort Frances Agency	.....	.....	.....	.....	.....	.....	5,520 00	.....	7	254
Savanne "	.....	.....	.....	.....	.....	.....	985 00	2	7	374
Sturgeon Falls Agency	.....	13	.....	18	26	136	5,276 00	10	33	95
Total	1,506	5,235	2,287	1,159	2,031	36,329	306,566 85	286	389	1,608
QUEBEC.										
Lake of Two Mountains Agency	54	183	124	9	3	767	3,172 50	2	28	2
Caughnawaga "	47	152	56	38	34	400	32,941 50	.....	35	1
St Regis "	75	140	200	100	80	1,000	23,390 00	.....	63	.....
Viger "	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
St. Francis "	6	33	.....	.....	.....	130	2,150 00	.....	13	10
Lake St. John "	15	46	.....	.....	.....	200	5,728 00	.....	.....	156
Maria "	3	8	.....	.....	.....	80	1,000 00	.....	.....	7
Restigouche "	12	62	.....	.....	.....	190	7,400 00	.....	4	47
River Desert "	15	18	40	.....	.....	300	4,663 50	.....	3	45
Jeune Lorette "	.....	15	.....	.....	4	200	1,000 00	.....	.....	6
Becancour "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Timiscaming "	.....	8	.....	.....	.....	290	1,770 00	.....	1	24
Bersimis "	.....	2	.....	.....	.....	10	345 00	1	.....	104
Mingan "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	227	670	420	147	121	3,567	83,560 50	3	147	407

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS—*Concluded.*

Agency.	General Effects.						Household Effects.	Value of Real and Personal Property.
	Rifles.	Shot Guns.	Nets.	Steel Traps.	Tents.	Value of.	Value of.	
						$ cts.	$ cts.	$ cts.
Ontario.								
Grand River Superintendency—Six Nations	15	129	.....	280	3	900 00	33,700 00	1,087,834 00
Parry Sound Superintendency	57	50	121	330	.....	2,850 00	13,700 00	110,993 50
New Credit (Mississaguas) Agency	5	14	1	30	....	86 00	5,750 00	227,625 00
Walpole Island Agency	18	42	.....	1,175	.....	1,000 00	16,000 00	44,409 00
Sarnia "	11	21	7	5	....	893 00	12,845 00	424,002 00
Caradoc "	34	46	4	493	10	514 40	29,980 00	541,150 45
Moravian "	12	11	8	35	....	250 00	32,000 00	180,200 00
Manitowaning "	36	142	355	595	88	9,625 00	27,500 00	340,823 00
Gore Bay "	...	...	...	...	...	...	...	...
Thessalon "	9	72	162	1,111	49	5,631 00	6,456 00	103,289 00
Sault Ste. Marie "	42	174	125	1,065	101	9,000 00	18,100 00	201,510 00
Port Arthur "	...	...	...	...	...	...	...	...
Golden Lake "	20	12	9	158	9	560 00	700 00	13,249 00
Tyendinaga "	15	30	5	250	.....	1,000 00	30,000 00	959,210 00
Lake Simcoe "	5	10	5	55	12	775 00	2,750 00	57,060 00
Cape Croker "	25	25	300	30	6	5,972 00	22,725 00	231,524 75
Saugeen "	43	100	30	110	15	1,200 00	6,000 00	98,880 00
Alnwick "	7	18	.....	512	22	896 00	5,301 00	128,951 15
Mud Lake "	6	28	....	1,900	15	1,355 00	2,000 00	50,490 00
Rice Lake "	1	7	.....	600	3	1,070 00	1,500 00	51,835 00
Rama "	28	13	...	375	30	675 00	3,875 00	55,600 00
Christian Island "	50	30	50	500	35	1,600 00	5,500 00	252,100 00
Scugog "	4	6	.....	153	1	182 50	845 00	46,704 75
Indians of Christian Island band residing on Manitoulin Island	1	2	12	2	4	300 00	800 00	2,900 00
Rat Portage Agency	32	249	366	2,925	204	11,546 50	4,215 00	152,358 75
Fort Frances "	56	84	184	1,865	69	4,427 00	4,130 00	238,139 00
Savanne "	50	224	387	3,165	146	11,018 00	3,558 00	120,000 50
Sturgeon Falls "	64	90	150	1,030	100	6,006 00	10,700 00	276,174 50
Total	646	1,629	2,281	18,749	922	79,332 40	300,630 00	5,997,013 35

QUEBEC.									
Lake of Two Mountains Agency	12	30	8	199	7	633 25	4,031 75	95,403 00
Caughnawaga "	12	9	2	47	3	575 00	54,490 00	645,971 00
St. Regis "	18	29	20	450	.....	800 00	15,000 00	369,640 00
Viger "	.....	21	.....	259	.....	295 00	780 00	2,965 00
St. Francis "	4	25	.....	620	27	750 00	7,834 00	103,209 00
Lake St. John "	172	240	140	7,200	200	22,210 00	7,200 00	98,402 00
Maria "	1	12	.....	100	....	400 00	2,000 00	20,850,00
Restigouche "	22	7	.....	84	3	2,700 00	12,600 00	85,938 00
River Desert "	25	96	15	675	39	2,862 50	3,535 00	172,912 00
Jeune Lorette "	4	45	.....	200	8	800 00	8,000 00	74,250 00
Becancour "	.....	.....	.....	.....	.....	.....	.....	.....
Timiskaming "	26	20	30	450	20	1,578 00	3,460 00	38,817 23
Bersimis "	23	140	29	1,289	76	4,495 00	5,312 00	37,739 00
Mingan "	.....	.....	.....	.....	.....	.....	.....	.....
Total	319	674	244	11,573	383	38,098 75	124,242 75	1,746,096 23

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

AGRICULTURE, SEASON 1903.

Agency.	Grain, Roots and Fodder.									
	Wheat.		Oats.		Barley.		Corn.		Pease.	
	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.
ONTARIO.										
Grand River Superintendency—Six Nations	1,423	24,652	2,697	77,572	310	7,464	373	19,796	123	1,764
Parry Sound Superintendency	.....	.....	.....	900	...	150	.....	400	.....	500
New Credit (Mississaguas) Agency	150	755	218	5,305	48	864	7	350	24	425
Walpole Island Agency	140	621	240	5,619	20	250	200	5,207	2	11
Sarnia "	144	2,632	417	10,274	58	1,191	77	2,315	19	567
Caradoc "	327	3,408	864	29,668	56	1,303	335	14,476	20	279
Moravian "	130	1,000	160	4,800	40	1,200	140	4,200	.....	.....
Manitowaning "	221	3,812	408	8,809	19	250	41	891	431	7,334
Gore Bay "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thessalon "	.....	.....	63	1,504	.....	.....	15	500	22	480
Sault Ste. Marie "	.....	.....	80	1,200	4	50	15	130	16	160
Port Arthur "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Golden Lake "	.....	.....	13	145	.....	.....	2	55	6	100
Tyendinaga "	300	6,000	1,300	39,000	400	10,000	125	7,500	40	850
Lake Simcoe "	20	600	92	2,400	17	625	2	75	.....	40
Cape Croker "	60	1,000	100	3,500	10	400	35	1,000	100	3,500
Saugeen "	20	400	150	3,000	.....	.....	35	1,050	50	750
Alnwick "	83	1,493	151	5,585	4	104	.....	.....	94	1,850
Mud Lake "	36	580	200	3,100	.....	.....	5	120	25	250
Rice Lake "	80	1,600	50	1,500	.....	.....	3	60	80	1,600
Rama "	21	410	200	6,000	.....	.....	15	380	41	1,100
Christian Island "	30	500	125	3,000	.....	.....	75	1,000	40	800
Scugog "	11	200	54	1,350	.....	.....	1	6	5	100
Indians of Christian Island band residing on Manitoulin Island	3	100	6	200	.....	.....	2	25	6	150
Rat Portage Agency	.....	.....	.....	.....	.....	.....	3	184	.....	.....

Fort Frances Agency										
Savanne "										
Sturgeon Falls "			30	360			5	N. given	4	100
Total	3,199	49,763	7,618	214,791	986	23,851	1,511	59,720	1,148	22,710
QUEBEC.										
Lake of Two Mountains Agency	50	695	302	7,128	23	341	42	779	10	121
Caughnawaga "			775	20,150	50	1,300	200	3,000	15	300
St. Regis "	120	2,150	495	11,500	32	600	189	5,940	50	750
Viger "										
St. Francis "			63	547			5	83	3½	32
Lake St. John "	62	500	350	4,500	32	270			40	395
Maria "	3	40	30	500						
Restigouche "	12	218	162	4,226	8	242			3	124
River Desert "	7	125	150	3,000			1½	40	15	400
Jeune Lorette "			12	300			1	12	½	12
Becancour "										
Timiskaming "			44	910					4	35
Bersimis "										
Mingan "										
Total	254	3,728	2,383	52,761	145	2,753	438½	9,854	141	2,169

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

AGRICULTURE, SEASON 1903.

Agency.	Grain, Roots and Fodder—*Continued.*									
	Rye.		Buckwheat.		Beans.		Potatoes.		Carrots.	
	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Planted.	Bushels Harvested.	Acres Sown.	Bushels Harvested.
Ontario.										
Grand River Superintendency—Six Nations	172	2,209	43	514	38	662	179	11,479	1¾	180
Parry Sound Superintendency	.....	.....	.....	.....	.....	150	.....	4,175	.....	115
New Credit (Mississaguas) Agency	.....	.....	.....	.....	2	60	14½	1,600	1	70
Walpole Island "	.....	.....	19	334	29	242	223	2,623	6	97
Sarnia "	.....	.....	.....	.....	Notgivn	162	70	2,341	.....	.....
Caradoc "	.....	.....	47	645	35	667	92	8,078	6	881
Moravian "	20	600	35	700	50	1,000	38	1,200	.....	.....
Manitowaning "	.....	.....	.....	.....	7¼	200	345	19,479	5¾	276
Gore Bay "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thessalon "	.....	.....	.....	.....	.....	.....	77	6,626	.....	.....
Sault Ste. Marie "	.....	.....	1	15	1½	36	178	4,350	3	85
Port Arthur "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Golden Lake "	.....	.....	1	35	.....	.....	5	315	.....	.....
Tyendinaga "	390	8,190	500	12,500	15	450	200	10,000	1	75
Lake Simcoe "	.....	.....	11	200	¾	.....	8	200	.....	.....
Cape Croker "	.....	.....	.....	.....	6	120	40	1,500	2½	90
Saugeen "	.....	.....	.....	.....	5	150	55	2,000	1½	75
Alnwick "	20	300	6½	240	¼	8½	20¼	1,920	.....	.....
Mud Lake "	.....	.....	16	175	1	20	30	3,000	1	200
Rice Lake "	5	100	5	50	.....	.....	12	1,200	.....	.....
Rama "	.....	.....	.....	.....	2	21	47	2,000	2	120
Christian Island "	.....	.....	.....	.....	5	75	100	3,500	.....	.....
Scugog "	8	130	6	300	¼	2	3	155	.....	.....
Indians of Christian Island Band residing on Manitoulin Island	.....	.....	.....	.....	1	15	8	500	¼	8
Rat Portage Agency	.....	.....	.....	.....	.....	.....	8¾	1,573	.....	.....
Fort Frances "	.....	.....	.....	.....	.....	.....	17	2,145	.....	.....
Savanne "	.....	.....	.....	.....	.....	.....	26	1,870	.....	.....

Sturgeon Falls "	.....	.....	.....	.....	.....	.....	Not given.	1,250	.....	5
Total..	615	11,529	690½	15,708	199	4,040½	1,796½	95,079	30¾	2,277
QUEBEC.										
Lake of Two Mountains Agency	.....	.....	41	902	10¼	164	55	6,048	¼	10
Caughnawaga "	.....	.....	90	23,400	7	200	125	2,500	.....	.....
St. Regis "	8	144	50	950	12½	340	200	8,500	9	400
Viger "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Francis "	.....	.....	12	75	4	37	30	1,150	½	6
Lake St. John "	.....	.....	60	1,100	3	42	325	6,700	½	30
Maria "	.....	.....	.....	.....	.....	.....	6	500	.....	.....
Restigouche "	.....	.....	15	416	1	19	50	3,240	1	45
River Desert "	.....	.....	12	400	1	25	30	3,000	1	100
Jeune Lorette "	.....	.....	1	10	1	16	5	300	½	30
Bécancourt "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Timiskaming "	.....	.....	.....	.....	.....	.....	8	630	.....	.....
Bersimis "	.....	.....	.....	.....	.....	.....	13	500	.....	.....
Mingan "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	8	144	281	27,253	39¾	843	847	33,068	12¾	621

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

AGRICULTURE, SEASON 1903—*Concluded.*

Agency.	Grain, Roots and Fodder—*Concluded.*							New Land Improvements.			
	Turnips.		Other Roots.		Hay.		Other Fodder.	Land Cleared.	Land Broken.	Land Cropped for first time.	Land Fenced.
	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Cultivated.	Wild.					
ONTARIO.					Tons.	Tons.	Tons.	Acres.	Acres.	Acres.	Acres.
Grand River Superintendency—Six Nations	3¾	400	12	2,705	4,324	.....	2,886	.....	.....	.....	.....
Parry Sound "	.....	405	.....	180	270	130	.....	30	.....	.....	.....
New Credit (Mississaguas) Agency	½	50	5	300	486	.....	175	.....	20	15	75
Walpole Island Agency	14	525	.....	.....	295	400	800	.....	15	15	.....
Sarnia "	.....	.....	.....	.....	531	1	669	2	2	2	.....
Caradoc "	7	801	14	3,390	1,365	41	1,208	33	.....	31	1,830
Moravian "	3	600	10	4,000	500	.....	700	6	6	6	6
Manitowaning "	17¾	1,129	6¼	118	1,514	39	653	5	.....	5	.....
Gore Bay "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thessalon "	.....	.....	.....	.....	100	42	11	5	.....	.....	5
Sault Ste. Marie "	10	660	8	170	370	210	.....	2	.....	.....	.....
Port Arthur "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Golden Lake "	.....	50	.....	.....	12	15	15	2	.....	.....	.....
Tyendinaga "	10	2,000	5	1,000	1,000	.....	850	.....	.....	.....	.....
Lake Simcoe "	3	2,000	.....	.....	70	12	4	3	3	3	3
Cape Croker "	3	420	.....	.....	300	50	60	5	10	10	.....
Saugeen "	2	600	15	1,000	200	10	140	45	25	16	.....
Alnwick "	13½	4,775	.....	1	109	.....	172	.....	.....	.....	.....
Mud Lake "	5	1,500	3	400	70	.....	30	.....	.....	.....	8
Rice Lake "	10	2,000	3	500	60	.....	30	.....	.....	.....	25
Rama "	3	480	3	210	310	16	13	5	5	5	25
Christian Island "	5	500	.....	.....	200	75	.....	50	50	50	50
Scugog "	.....	.....	.....	.....	21	.....	.....	.....	.....	.....	.....
Indians of Christian Island band residing on Manitoulin Island	6	400	1½	75	20	5	6	.....	.....	.....	.....
Rat Portage Agency	1½	140	.....	.....	.....	373	.....	.....	.....	.....	.....

Fort Frances Agency	.....	.....	3½	255	.....	35	178	.....	.....	.....	.....
Savanne "	.....	.....	3¾	115	.....	110	.....	.....	.....	.....	.....
Sturgeon Falls "	.....	150	.....	25	30	180	.....	20	.....	.....	.....
Total	120	19,585	93	14,444	12,157	1,744	8,600	213	136	158	1,984
QUEBEC.											
Lake of Two Mountains Agency	3	250	.....	.....	301	40	323	22	25	.....	5
Caughnawaga Agency	.....	.....	.....	.....	3,000	.....	.....	30	22	10	75
St. Regis "	13	900	9	950	1,500	500	750	.....	10	10	8
Viger "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
St. Francis "	.....	.....	.....	.....	150	.....	.....	7	.....	3	5
Lake St. John "	4	75	.....	.....	140	.....	75	11	3	7	5
Maria "	1	30	.....	.....	25	.....	15	.....	.....	.....	.....
Restigouche "	3	168	.....	.....	356	24	290	6	4	4	4
River Desert "	10	3,500	3	75	125	10	140	7	45	7	7
Jeune Lorette "	1	72	4	300	140	120	120	.....	.....	.....	.....
Becancour "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Timiskaming "	.....	.....	.....	.....	52	.....	25	4	4	6	.....
Bersimis "	.....	.....	.....	.....	10	15	.....	.....	.....	.....	.....
Mingan "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	35	4,995	16	1,325	5,799	709	1,738	87	113	47	109

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PROGRESS DURING THE FISCAL YEAR ENDED JUNE 30, 1904.

Agency.	Buildings Erected.										
	Dwellings, Stone.	Dwellings, Brick.	Dwellings, Frame.	Dwellings, Log.	Shanties.	Barns.	Horse Stables.	Driving Houses.	Cattle Stables.	Pig Sties.	Store Houses.
ONTARIO.											
Grand River Superintendency—Six Nations			2			21					
Parry Sound Superintendency				2			1				
New Credit (Mississaguas) Agency			1			1					1
Walpole Island Agency				1							
Sarnia "			2								
Caradoc "	1		2								
Moravian "				2			2		3		
Manitowaning "				1	2						
Gore Bay "						1	1				
Thessalon "											
Sault Ste. Marie "			2	6	4	5	3	1	4	3	1
Port Arthur "											
Golden Lake "				1							
Tyendinaga "			2								
Lake Simcoe "											
Cape Croker "	1		1	2		2	2		3	2	
Saugeen "				3			2				
Alnwick "											
Mud Lake "											
Rice Lake "											
Rama "											
Christian Island "			1	2		2	2	2	5	5	
Scugog "			1								
Indians of Christian Island band residing on Manitoulin Island											
Rat Portage Agency				7							
Fort Frances "											

Savanne "											
Sturgeon Falls "			3	3	2						
Total.	2		17	30	8	32	13	3	15	10	2
QUEBEC.											
Lake of Two Mountains Agency			1	1		1	2	4	3	1	2
Caughnawaga Agency			12	1	1	2	2				
St. Regis "			4			3				1	
Viger "											
St. Francis "			1								
Lake St. John "			3			2	1			4	
Maria "											
Restigouche "			2			1	1		1		
River Desert "				1							
Jeune Lorette "											
Becancour "											
Timiskaming "											
Bersimis "			1								
Mingan "											
Total			24	3	1	9	6	4	4	6	2

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PROGRESS DURING THE FISCAL YEAR ENDED JUNE 30, 1904—*Concluded.*

Agency.	Buildings Erected.			Increase in Value.		
	Root Houses.	Milk Houses.	Corn Cribs.	Value of Clearing, Cultivating and Fencing.	Value of Buildings.	Increased value of Agricultural Products and Industries.
Ontario.				$ cts.	$ cts.	$ cts.
Grand River Superintendency—Six Nations					7,000 00	7,000 00
Parry Sound Superintendency				150 00	100 00	250 00
New Credit (Mississaguas) Agency				200 00	550 00	750 00
Walpole Island Agency					100 00	100 00
Sarnia "				20 00	350 00	370 00
Caradoc "				1,281 00	800 00	2,081 00
Moravian "				150 00	700 00	850 00
Manitowaning "				75 00	250 00	325 00
Gore Bay "						
Thessalon "				145 00	120 00	265 00
Sault Ste. Marie "	3	2		50 00	1,225 00	1,275 00
Port Arthur "						
Golden Lake "				50 00	200 00	250 00
Tyendinaga "					500 00	500 00
Lake Simcoe "				65 00		65 00
Cape Croker "				355 00	2,400 00	2,755 00
Saugeen "				874 00	200 00	1,074 00
Alnwick "						
Mud Lake "				100 00		100 00
Rice Lake "				50 00		50 00
Rama "				100 00		100 00
Christian Island "	5		2	800 00	1,200 00	2,000 00
Scugog "					200 00	200 00
Indians of Christian Island band residing on Manitoulin Island						
Rat Portage Agency					355 00	355 00
Fort Frances "						
Savanne "						
Sturgeon Falls "				300 00	800 00	1,100 00
Total	8	2	2	4,765 00	17,050 00	21,815 00

QUEBEC.						
Lake of Two Mountains Agency		3		190 00	1,040 00	1,230 00
Caughnawaga Agency				1,062 00	4,912 00	5,974 00
St. Regis "			7	200 00	3,400 00	3,600 00
Viger "						
St. Francis "				86 00	150 00	236 00
Lake St. John "	1	4		235 00	1,507 00	1,742 00
Maria "						
Restigouche "		1		160 00	280 00	440 00
River Desert "				357 00	500 00	857 00
Jeune Lorette "						
Becancour "						
Timiskaming "				100 00	100 00	200 00
Bersimis "					300 00	300 00
Mingan "						
Total	1	8	7	2,390 00	12,189 00	14,579 00

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

SOURCES AND VALUE OF INCOME.

Agency.	Value of Farm Products, Including Hay.	Wages Earned.	Received from Land Rentals.	The Estimated Value of Fish and Meat used for Food is included in these Columns.		Earned by other Industries.	Total Income of Indians.
				Earned by Fishing.	Earned by Hunting.		
Ontario.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Grand River Superintendency—Six Nations	102,752 00	142,855 00	3,789 00	.....	.....	.....	249,396 00
Parry Sound Superintendency	6,102 00	11,800 00	.....	3,300 00	3,250 00	2,500 00	26,952 00
New Credit (Mississaguas) Agency	7,778 00	3,700 00	2,400 00	60 00	40 00	1,400 00	15,378 00
Walpole Island Agency	8,900 00	20,000 00	25 00	600 00	350 00	5,715 00	35,590 00
Sarnia "	14,900 80	11,377 00	1,546 00	785 00	23 00	2,310 00	30,941 80
Caradoc "	32,128 88	61,189 00	5,977 75	472 00	321 00	10,505 00	110,593 63
Moravian "	8,855 00	3,900 00	100 00	1,800 00	450 00	2,300 00	17,405 00
Manitowaning "	29,520 00	23,750 00	5,585 00	19,150 00	27,550 00	14,350 00	119,905 00
Gore Bay "	.....	.....	.....	.....	.....	.....	.....
Thessalon "	5,602 00	27,295 00	300 00	1,351 00	947 00	1,084 00	36,579 00
Sault Ste. Marie "	7,700 00	44,800 00	2,765 00	4,000 00	5,600 00	5,400 00	70,265 00
Port Arthur "	.....	.....	.....	.....	.....	.....	.....
Golden Lake "	857 00	3,220 00	.....	40 00	900 00	300 00	5,317 00
Tyendinaga "	52,459 75	30,000 00	5,614 46	.....	.....	.....	88,074 21
Lake Simcoe "	2,385 00	1,800 00	196 00	775 00	112 00	1,600 00	6,868 00
Cape Croker "	10,061 70	3,000 00	80 00	4,200 00	250 00	4,500 00	22,091 70
Saugeen "	5,196 00	10,000 00	.....	150 00	220 00	10,000 00	25,566 00
Alnwick "	6,867 45	5,280 00	1,629 37	383 00	234 00	1,473 40	15,897 22
Mud Lake "	4,150 00	1,600 00	1,655 00	500 00	1,300 00	1,300 00	10,505 00
Rice Lake "	2,550 00	500 00	1,450 66	200 00	700 00	500 00	5,900 66
Rama "	6,450 00	4,500 00	.....	700 00	270 00	3,550 00	15,470 00
Christian Island "	5,500 00	4,000 00	.....	1,500 00	1,000 00	6,000 00	18,000 00
Scugog "	833 50	169 00	92 45	30 00	265 00	139 00	1,528 95
Indians of Christian Island band residing on Manitoulin Island	750 00	600 00	120 00	500 00	400 00	500 00	2,870 00
Rat Portage Agency	2,210 80	9,491 00	.....	6,411 00	11,693 00	5,768 25	35,574 05
Fort Frances "	3,210 00	19,000 00	4,940 00	13,600 00	10,100 00	6,000 00	56,850 00
Savanne "	1,216 75	8,950 00	.....	6,110 00	19,316 50	4,062 00	39,655 25
Sturgeon Falls "	2,050 00	9,700 00	.....	2,000 00	5,300 00	2,700 00	21,750 00
Total	330,986 63	462,476 00	38,295 69	68,617 00	90,591 50	93,956 65	1,084,923 47

QUEBEC.								
Lake of Two Mountains, Agency	9,905 50	17,059 00	1,484 00	150 00	1,528 50	5,068 00	35,195 00
Chaughnawaga Agency	43,496 00	209,825 00	3,277 00	587 00		11,375 00	268,560 00
St. Regis "	33,980 00	90,000 00	208 45	1,200 00	950 00	15,200 00	141,538 45
Viger "		1,890 00	249 26	47 00	1,330 00	3,315 00	6,831 26
St. Francis "	1,713 25	257 00			253 00	28,340 00	30,563 25
Lake St. John "	7,000 00	5,000 00		500 00	26,000 00	900 00	39,400 00
Maria "	1,200 00	3,000 00		500 00	600 00	1,500 00	6,800 00
Restigouche "	11,040 00	19,200 00	25 00	140 00	120 00	8,800 00	39,325 00
River Desert "	4,312 00	14,000 00	300 00	100 00	4,500 00	10,000 00	33,212 00
Jeune Lorette "	650 00	5,500 00		100 00	600 00	18,000 00	24,850 00
Becancour "							
Timiskaming "	1,623 50	10,260 00	195 00	70 00	2,420 00	375 00	14,943 50
Bersimis "	490 00	1,100 00		875 00	29,407 00	1,150 00	33,022 00
Mingan "							
Total	115,410 25	377,091 00	5,738 71	4,269 00	67,708 50	104,023 00	674,240 46

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

REALTY OF INDIANS.

Agency.	Land.		Public Buildings, Property of the Band.						Private Fencing and Buildings.				
	Cleared, including natural pasturage.	Cultivated, including made pasturage.	Churches.	Council Houses.	School Houses.	Driving Sheds.	Other Buildings.	Ferries.	Acres Fenced.	Dwellings, Stone.	Dwellings, Brick.	Dwellings, Frame.	Dwellings, Log.
New Brunswick.	Acres.	Acres.											
Richibucto Superintendency	2,115	985	6	1	2	.....	3	.....	930	....	.....	167	.....
Fredericton "	187	487	1	2	1	.....	2	.....	348	.....	.....	111	11
Total	2,302	1,472	7	3	3	.....	5	.....	1,278	.....	.....	278	11
Prince Edward Island.													
Prince Edward Island Superintendency	355	274	1	.....	1	.....	1	.....	275	.....	.....	49	.....
Nova Scotia.													
Annapolis County	.....	.....	1	1	1	....	.....	.....	12	.....	.....	10	2
Shelburne "	.....	.....	.....	.....	.....	.....	.....	.....	15	.....	.....	6	.....
Digby "	200	48	1	....	1	1	.	.....	300	.....	.....	26	.....
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....	.....
King's "	2	2	.....	...	.....	.. .	....	.....	20	.....	.....	9	.....
Queen's "	200	200	..	.....	.....	.....	.....	.....	170	.....	.....	17	.....
Halifax "	36	16	.....	.....	1	.....	.....	.....	.....	.....	.....	16	.....
Hants "	212	88	1	.....	1	.....	2	.....	80	.....	.....	16	.....
Colchester "	211/4	133/4	.....	.....	1	.....	.....	.....	15	.....	.....	18	.....
Cumberland "	220	30	1	.....	.....	.....	.....	.....	20	.....	.....	21	2
Pictou "	120	55	1	.....	1	.....	.....	.....	50	.....	.....	29	.....
Antigonish and Guysborough Counties	190	185	1	.....	.....	.....	.....	.....	200	1	1	37	.....
Richmond County	130	170	1	1	1	.....	.....	1	141	.....	.....	10	4
Inverness "	423	670	.....	.....	1	1	.....	.....	785	.....	.....	27	2

Victoria "	197	60	.....	.....	1	.....	1	.....	175	.....	.....	14	.....
Cape Breton "	12¾	2¾	.....	.....	1	.....	.....	.....	2¾	.....	.....	9	.....
Lunenburg "	320	450	.....	.....	1	.....	.....	.....	490	.....	.....	14	.....
Cape Breton (Eskasoni)	600	400	1	.....	1	.....	.....	.....	600	.....	.....	12	5
Total	2,884	2,390½	8	2	12	2	3	1	3,075¾	1	1	291	15
British Columbia.													
Cowichan Agency	5,399	3,128	3	.....	6	.....	.....	.....	5,218	.....	.....	555	19
West Coast Agency	352	63	.....	.....	1	.....	.....	.....	63	.....	.....	347	.....
Kwawkewlth "	311	1	.....	.....	5	.....	.....	.....	19	.....	.....	77	2
Lower Fraser "	3,392	3,806	43	5	1	.....	.....	.....	4,811	.....	.....	757	62
Williams Lake "	59,807½	1,610¾	21	.....	.....	.....	.....	.....	22,611	..	.....	4	464
Kamloops-Okanagan Agency	238,692	9,800	32	6	.....	.....	.....	..	75,837	.....	.....	123	866
Kootenay Agency	38,701	1,295	5	.....	1	.....	.....	....	1,295	.....	.....	20	139
Northwest Coast Agency	534½	196	14	5	12	.....	15	.. ..	47	....	.....	793	71
Babine and Upper Skeena River Agency	20,432	490	.....	.....	.....	.....	3	.....	665	.....	...	267	476
Total	367,621	20,389¾	8	16	26	.....	18	..	110,566	.....	.....	2,943	2.090
Manitoba.													
Clandeboye Agency	47,540	455	6	1	8	.....	.....	3	2,795	.....	.....	3	329
Portage la Prairie Agency	18,604	556	1	1	3	.....	7	.....	2,800	.....	.....	.....	47
Manitowapah Agency	39,748	262	8	...	11	.. .	10	1	180	.....	.....	.....	272
Rat Portage (Buffalo Bay Band) Agency	200	3	... .	...	... .	.....	.....	.....	.....	.....	.....	.....	6
Norway House Agency	13,307	2,849	9	2	11	.....	.....	.....	353	.....	.....	.....	383
The Pas Agency	16,315½	63½	.. .	1	4	.....	8	.. ..	71½	.....	.....	.....	186
Total	135,714½	4,188½	24	5	37	.....	25	4	6,199½	.....	.....	3	1,223

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

REALTY OF INDIANS.

Agency.	Private Buildings.									
	Shanties.	Barns.	Horse Stables.	Driving Houses.	Cattle Stables.	Pig Sties.	Store Houses.	Root Houses.	Milk Houses.	Corn Cribs.
New Brunswick.										
Richibucto Superintendency	54	65	47	.....	57	21	.....	44	2	.....
Fredericton "	37	16	29	7	21	30	.....	8	9	.....
Total	91	81	76	7	78	51	.....	52	11	.....
Prince Edward Island.										
Prince Edward Island Superintendency	2	26	23	.....	23	12	4	41	6	.....
Nova Scotia.										
Annapolis County	6	2	.....	.....	1	1	.....	.....	.....	.....
Shelburne "	.....	1	.....	.....	.....	1	.....	.....	.....	.....
Digby "	5	5	.....	.....	3	.....	.....	.....	.....	.....
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
King's "	3	2	1	.....	2	1	.....	.....	.....	.....
Queen's "	2	2	.....	.....	.....	3	.....	.....	.....	.....
Halifax "	18	5	.....	.....	.....	.....	.....	.....	.....	.....
Hants "	1	7	2	.....	7	.....	.....	.....	.....	.....
Colchester "	.....	3	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland "	4	4	4	.....	3	2	.....	.....	.....	.....
Pictou "	1	9	.....	.....	.....	.....	.....	.....	.....	.....
Antigonish and Guysborough Counties	8	5	.....	.....	.....	.....	.....	.....	.....	.....
Richmond County	10	8	9	.....	9	.....	.....	.....	1	.....
Inverness "	7	15	.....	.....	.....	.....	.....	.....	4	.....
Victoria "	4	8	.....	.....	.....	.....	.....	.....	.....	.....
Cape Breton "	9	1	1	.....	.....	.....	.....	.....	.....	.....
Lunenburg "	.....	7	.....	.....	.....	4	.....	.....	.....	.....

Cape Breton (Eskasoni)	6	13	.....	.....	.....	.....	.....	.....	.....	.....
Total	84	97	17	.....	25	12	.....	.....	5	.....
British Columbia.										
Cowichan Agency	24	211	4	.....	70	.....	.....	.....	.....	.....
West Coast "	361	2	1	.....	1	.....	8	.....	.....	.....
Kwawkewlth "	168	.....	.....	.....	1	1	.....	.....	.....	.....
Lower Fraser "	301	300	280	1	269	91	8	51	1	.....
Williams Lake Agency	.....	.....	184	.....	.....	34	.....	19	.....	.....
Kamloops-Okanagan Agency	18	24	607	2	105	74	93	295	6	.....
Kootenay Agency	86	25	21	.....	18	.....	.....	22	.....	.....
Northwest Coast Agency	5	22	2	5	2	.....	29	168	.....	.....
Babine and Upper Skeena River Agency	277	.....	60	.....	56	.....	18	113	.....	.....
Total	1,240	584	1,159	8	522	200	156	668	7	.....
Manitoba.										
Clandeboye Agency	.....	.....	5	.....	216	11	72	11	8	.....
Portage la Prairie Agency	35	.....	29	.....	33	2	6	2	.....	.....
Manitowapah "	32	.....	112	.....	197	14	63	37	22	.....
Rat Portage (Buffalo Bay Band) Agency	.....	.....	2	.....	1	.....	.....	.....	.....	.....
Norway House Agency	.....	.....	4	.....	144	.....	28	.....	.....	.....
The Pas Agency	.....	.....	2	.....	54	.....	22	.....	.....	.....
Total	67	.....	154	.....	645	27	191	50	30	.....

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS.

Agency.	Agricultural Implements, Vehicles, &c.										
	Ploughs.	Harrows.	Seed Drills.	Cultivators.	Land Rollers.	Mowers.	Reapers.	Horse Rakes.	Fanning Mills.	Threshing Machines.	Tool Chests.
New Brunswick.											
Richibucto Superintendency	23	19	.....	8	1	6	.....	1	.....	.....	8
Fredericton	44	36	.....	18	10	1	.....	9	4	.....	.....
Total	67	55	.....	26	11	7	.....	10	4	.....	8
Prince Edward Island.											
Prince Edward Island Superintendency	10	12	.....	3	2	.....	.....	.....	1	1	5
Nova Scotia.											
Annapolis County	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Shelburne "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Digby "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
King's "	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Queen's "	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Halifax "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hants "	2	1	.....	5	.....	2	.....	2	.....	.....	12
Colchester "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland "	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pictou "	2	2	.....	1	.....	.....	.....	.....	.....	.....	.....
Antigonish and Guysborough Counties	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
Richmond County	3	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
Inverness "	8	5	.....	2	.....	2	.....	3	.....	.....	5
Victoria "	2	2	.....	.....	.....	.....	.....	1	.....	.....	.....

Cape Breton County	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lunenburg "	5	4	.....	.....	1	1	.....	.....	.....	.....	.....
Cape Breton (Eskasoni)	5	3	.....	.....	.....	3	.....	.....	.....	.....	.....
Total	34	23	.....	8	1	8	.....	6	.....	.....	22
British Columbia.											
Cowichan Agency	155	94	.....	1	2	40	15	25	7	14	.....
West Coast "	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kwawkewlth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lower Fraser "	114	95	1	4	..	24	3	4	.....	3	.....
Williams Lake "	174	71	.....	3	83	46	5	28	15	1	.....
Kamloops-Okanagan Agency	500	351	3	9	274	119	20	98	26	4	.....
Kootenay Agency	89	26	.....	.....	.....	32	4	22	2	1	.....
Northwest Coast Agency	5	4	.....	.....	.....	.....	.....	.....	.....	.....	181
Babine and Upper Skeena River Agency	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	1,039	645	4	17	359	261	47	177	50	23	181
Manitoba.											
Clandeboye Agency	67	54	.....	.....	.....	54	.....	48	.....	.....	9
Portage la Prairie Agency	37	18	6	.....	.....	21	7	14	3	.....	4
Manitowapah	31	25	.....	.....	.....	35	.....	30	.....	.....	9
Rat Portage (Buffalo Bay Band) Agency	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Norway House Agency	48	29	.....	.....	.....	.....	.....	.....	.....	.....	9
The Pas Agency	15	20	.....	.....	.....	3	.....	3	.....	.....	3
Total	199	147	6	.....	.....	113	7	95	3	.....	34

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS—*Continued.*

Agency.	Agricultural Implements, &c.—*Concluded.*							Value of Implements and Vehicles.
	Other Implements.	Wagons.	Carts.	Sleighs, Draught.	Sleighs, Driving.	Democrat Wagons.	Buggies and Road Carts.	
								$ cts.
New Brunswick.								
Richibucto Superintendency	890	27	1	48	15	4	15	3,370 00
Fredericton	256	36	.....	33	33	2	9	3,750 00
Total	1,146	63	1	81	48	6	24	7,120 00
Prince Edward Island.								
Prince Edward Island Superintendency	105	3	3	9	2	.....	.....	810 00
Nova Scotia.								
Annapolis County	.....	2	.....	2	.....	.....	.....	50 00
Shelburne "	.....	.....	1	1	.....	.....	.....	15 00
Digby "	50	.....	.....	.....	.....	.....	.....	20 00
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....
King's "	.....	1	.....	.....	.....	.....	.....	35 00
Queen's "	8	3	1	1	1	.....	.....	175 00
Halifax "	16	4	.....	2	.....	.....	.....	Not given.
Hants "	50	2	5	6	5	3	6	1,850 00
Colchester "	6	.....	.....	.....	.....	.....	.....	3 00
Cumberland "	25	3	.....	4	2	1	1	200 00
Pictou "	.....	5	2	5	1	.....	.....	150 00
Antigonish and Guysborough Counties	.....	5	3	4	.....	.....	.....	130 00
Richmond County	142	1	4	8	3	.....	.....	350 00
Inverness "	205	5	8	11	2	.....	.....	507 00
Victoria "	125	1	2	3	.....	1	1	480 00

Cape Breton "	.....	.....	2	2	.....	.....	.....	40 00
Lunenburg "	12	3	.....	2	1	.....	3	300 00
Cape Breton (Eskasoni)	.....	7	7	8	.....	.....	.....	850 00
Total	639	42	35	59	15	5	11	5,155 00
British Columbia.								
Cowichan Agency	4,120	176	2	13	9	23	120	31,946 00
West Coast "	540	2	.....	.....	.....	2	8	895 00
Kwawkewlth "	610	.....	.....	.....	.....	.....	.....	495 00
Lower Fraser "	2,043	96	6	9	4	.....	1	15,124 00
Williams Lake "	639	90	.....	153	11	16	15	22,408 50
Kamloops-Okanagan Agency	1,879	213	3	320	71	51	67	55,064 50
Kootenay "	217	47	.....	51	2	9	3	11,498 00
Northwest Coast "	3,730	5	.....	17	.....	.....	.....	9,510 00
Babine and Upper Skeena River Agency	8,725	1	.....	.....	.....	.....	.....	3,165 00
Total	22,503	630	11	563	97	101	214	150,106 00
Manitoba.								
Clandeboye Agency	173	69	6	73	16	3	13	9,650 00
Portage la Prairie Agency	300	29	24	30	35	4	28	4,600 00
Manitowapah "	680	46	45	85	81	6	43	6,710 00
Rat Portage (Buffalo Bay Band) Agency	12	.....	.....	.....	.....	.....	.....	18 25
Norway House Agency	1,164	.....	.....	.....	.....	.....	.....	1,797 00
The Pas Agency	434	3	2	2	6	.....	.....	1,205 00
Total	2,763	147	77	190	138	13	84	23,980 25

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS—*Continued.*

Agency.	Live Stock and Poultry.											
	Horses.			Cattle.					Other Stock.			
	Stallions and Geldings.	Mares.	Colts, Fillies and Foals.	Bulls.	Oxen, Work.	Steers.	Cows, Milch.	Young Stock.	Sheep.	Lambs.	Boars, Breeding.	
New Brunswick.												
Richibucto Superintendency	16	12	2	8	3	2	53	35	.....	.....	.....	
Fredericton "	17	8	6	.....	.....	12	16	35	.....	.....	5	
Total	33	20	8	8	3	14	69	70	.....	.....	5	
Prince Edward Island.												
Prince Edward Island Superintendency	7	4	1	1	.....	3	16	28	.....	.....	.....	
Nova Scotia.												
Annapolis County	.....	.....	.....	.....	2	.....	.....	2	.....	.....	.....	
Shelburne "	.....	.....	.....	.....	1	.....	1	1	.....	.....	.....	
Digby "	.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
King's "	1	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	
Queen's "	1	.....	.....	.....	2	4	6	5	.....	.....	.....	
Halifax "	3	.....	.....	.....	.....	4	3	.....	.....	.....	.....	
Hants "	2	2	2	1	.....	2	7	15	.....	.....	.....	
Colchester "	.....	.....	.....	.....	.....	.....	3	2	.....	.....	.....	
Cumberland "	.....	2	.....	.....	.....	.....	2	1	.....	.....	.....	
Pictou "	5	.....	.....	.....	.....	.....	2	3	.....	.....	.....	
Antigonish and Guysborough Counties	.....	3	.....	.....	.....	4	5	3	.....	.....	.....	
Richmond County	2	3	1	1	.....	4	10	8	.....	.....	.....	
Inverness "	2	11	1	2	.....	6	21	33	.....	.....	.....	
Victoria "	.....	3	.....	1	.....	4	14	15	3	2	.....	

Cape Breton County	2						1				
Lunenburg "	2	1	1		4	6	14	16	40	20	
Cape Breton (Eskasoni)	4	4	1			10	22	19	24		
Total	24	29	6	5	9	44	115	123	67	22	
British Columbia.											
Cowichan Agency	149	118	110	7	40	47	357	325	1,085	366	
West Coast "	10	13		11		13	43	64			
Kwawkewlth "											
Lower Fraser "	278	281	111	45	72	93	703	469	307	484	48
Williams Lake Agency	1,156	521	492	18		198	282	295	3	1	14
Kamloops-Okanagan Agency	2,872	3,144	3,049	44		147	868	1,212	17	21	26
Kootenay Agency	840	775	765	32		76	670	725			
Northwest Coast Agency	32	42	24	17		46	70	53	10	10	
Babine and Upper Skeena River Agency	389	67	38	28		31	310	164			
Total	5,726	4,961	4,589	202	112	651	3,303	3,307	1,422	882	88
Manitoba.											
Clandeboye Agency	51	71	75	10	135	77	197	164	15	7	1
Portage la Prairie Agency	51	56	5	4	36	14	48	62			
Manitowapah "	128	77	59	26	53	91	453	504	12	5	4
Rat Portage (Buffalo Bay Band) Agency	5				2						
Norway House Agency	14	13	7	20	67	48	148	139			
The Pas Agency	12	15	7	8	18	12	71	72			
Total	261	232	153	68	311	242	917	941	27	12	5

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS—*Continued.*

Agency.	Live Stock and Poultry—*Concluded.*						Value of Live Stock and Poultry.	General Effects.		
	Other Stock—*Con.*		Poultry.							
	Sows, Breeding.	Pigs.	Turkeys.	Geese.	Ducks.	Cocks and Hens.		Sail Boats.	Row Boats.	Canoes.
							$ cts.			
New Brunswick.										
Richibucto Superintendency	.....	21	.....	.....	15	294	2,875 00	49	49	31
Fredericton "	12	79	.....	33	.....	710	3,355 00	3	4	119
Total	12	100	.....	33	15	1,004	6,230 00	52	53	150
Prince Edward Island.										
Prince Edward Island Superintendency	.....	18	.....	11	.....	2,237	1,475 00	12	41	1
Nova Scotia										
Annapolis County	.....	1	.....	.....	3	10	110 00	.....	.....	5
Shelburne "	.....	2	.....	.....	.....	.....	90 00	.....	.....	1
Digby "	.....	1	.....	.....	.....	10	60 00	.....	.....	10
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
King's "	.....	1	.....	.....	.....	190	120 00	.....	.....	2
Queen's "	.....	6	.....	.....	.....	.....	250 00	.....	.....	7
Halifax "	.....	.....	.....	.....	.....	32	Not given	1	2	.....
Hants "	3	9	.....	.....	.....	35	1,550 00	2	2	1
Colchester "	.....	.....	.....	.....	.....	30	91 50	.....	.....	.....
Cumberland "	.....	2	.....	.....	.....	30	250 00	.....	1	2
Pictou "	.....	.....	.....	.....	.....	24	500 00	7	.....	.....
Antigonish and Guysborough Counties	.....	2	.....	.....	.....	60	350 00	2	3	1
Richmond County	.....	.....	.....	.....	.....	60	545 00	7	11	.....
Inverness "	.....	1	.....	.....	.....	40	1,100 00	8	15	.....

Victoria "						80	650 00		10	
Cape Breton "							75 00		2	
Lunenburg "		6		20	12	25	900 00		1	6
Cape Breton (Eskasoni)						200	1,350 00		12	
Total	3	31		20	15	826	7,991 50	27	59	35
BRITISH COLUMBIA.										
Cowichan Agency	3	28		302	600	5,260	41,000 00	192	1	449
West Coast "				6	6	475	4,686 00	66	14	1,185
Kwawkewlth Agency	6	19				400	462 50	21	24	465
Lower Fraser "	252	1,947		20	974	2,821	61,438 00	106	158	464
Williams Lake "	38	270			4	3,070	82,489 00		17	89
Kamloops-Okanagan Agency	258	619		18	24	2,438	142,540 00	4	48	145
Kootenay "						420	91,404 00		6	54
Northwest Coast "				20	20	2,450	13,500 00	328	212	1,239
Babine and Upper Skeena River Agency							50,275 00			380
Total	557	2,883		466	1,628	17,334	487,794 50	717	480	4,470
MANITOBA.										
Clandeboye Agency	14	45	10			600	34,250 00	9	205	39
Portage la Prairie Agency		3				40	7,100 00		10	10
Manitowapah "	11	23				124	35,560 00	35	122	117
Rat Portage (Buffalo Bay Band) Agency							200 00	1		14
Norway House Agency							14,050 00	11	355	276
The Pas Agency							5,740 00	2	23	278
Total	25	71	10			764	96,900 00	58	715	734

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS—*Concluded.*

Agency.	General Effects—*Concluded.*						Household Effects.	Value of Real and Personal Property.
	Rifles.	Shot Guns.	Nets.	Steel Traps.	Tents.	Value of	Value of.	
						$ cts.	$ cts.	$ cts.
New Brunswick.								
Richibucto Superintendency	7	114	215	113	15	7,150 00	9,225 00	90,320 00
Fredericton "	62	52	3	488	31	3,425 00	8,015 00	75,025 00
Total	69	166	218	601	46	10,575 00	17,240 00	165,345 00
Prince Edward Island.								
Prince Edward Island Superintendency	.....	13	17	20	.....	575 00	2,938 00	41,263 00
Nova Scotia.								
Annapolis County	6	5	10	15	2	50 00	150 00	2,085 00
Shelburne "	5	6	4	50	3	170 00	200 00	1,950 00
Digby "	9	6	.....	20	.....	300 00	300 00	4,765 00
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....
King's "	.....	20	.....	20	2	250 00	400 00	2,705 00
Queen's "	6	6	8	14	5	130 00	190 00	2,635 00
Halifax "	6	8	2	13	2	Not given	Not given	Not given
Hants "	10	20	1	79	.....	1,500 00	3,000 00	24,995 00
Colchester "	3	12	.....	20	.....	78 00	216 00	2,473 50
Cumberland "	10	17	.....	40	.....	160 00	500 00	3,710 00
Pictou "	.....	7	4	.....	.....	280 00	600 00	8,980 00
Antigonish and Guysborough Counties	.....	30	2	6	.....	150 00	1,500 00	9,590 00
Richmond County	.....	14	2	30	1	685 00	150 00	25,630 00
Inverness "	1	18	10	56	.....	404 00	725 00	17,886 00
Victoria "	.....	18	.....	165	.....	450 00	500 00	14,270 00
Cape Breton "	.....	3	.....	4	.....	40 00	.....	9,655 00
Lunenburg "	4	6	4	18	4	200 00	250 00	5,950 00
Cape Breton (Eskasoni)	.....	7	.....	50	.....	190 00	2,000 00	22,865 00
Total	60	203	47	600	19	5,037 00	10,681 00	160,144 50

British Columbia.								
Cowichan Agency	344	307	50	22	126	26,960 00	31,985 00	927,021 00
West Coast "	156	405	67	275	245	37,190 00	32,600 00	188,926 00
Kwawkewlth "	141	247	191	1,938	.....	14,515 00	49,290 00	117,984 00
Lower Fraser "	428	457	155	1,237	408	45,126 00	59,958 00	1,153,484 00
Willhams Lake Agency	414	130	156	1,240	241	12,193 50	14,039 00	365,337 50
Kamloops-Okanagan Agency	678	272	470	1,521	1,020	21,001 00	46,100 00	2,098,013 42
Kootenay Agency	164	27	.....	131	146	4,452 00	3,600 00	278,507 00
Northwest Coast Agency	1,095	349	357	11,980	132	124,930 00	114,200 00	729,253 00
Babine and Upper Skeena River Agency	684	371	94	3,285	57	48,675 00	20,325 60	300,656 00
Total	4,104	2,565	1,540	21,629	2,375	335,042 50	372,097 00	6,158,281 92
Manitoba.								
Clandeboye Agency	26	153	442	1,348	250	14,000 00	15,100 00	312,086 00
Portage la Prairie Agency	30	47	29	970	73	1,400 00	1,600 00	176,453 00
Manitowapah Agency	51	257	659	3,595	259	10,675 00	7,600 00	211,788 00
Rat Portage (Buffalo Bay Band) Agency	.....	5	8	115	9	367 00	135 00	6,800 25
Norway House Agency	35	356	1,711	3,036	356	23,810 00	19,475 00	43,285 00
The Pas	33	251	331	3,460	168	8,762 00	4,570 00	98,275 00
Total	175	1,069	3,180	12,524	1,115	59,014 00	48,480 00	848,687 25

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

AGRICULTURE, SEASON 1903.

Agency.	Grain, Roots and Fodder.									
	Wheat.		Oats.		Barley.		Corn.		Pease.	
	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.
New Brunswick.										
Richibucto Superintendency	24	207	191	3,460	.....	.....	.....	.....	.....	.....
Fredericton "	2	50	104	2,225	.....	.....	1	35	3¾	70
Total	26	257	295	5,685	.....	.....	1	35	3¾	70
Prince Edward Island.										
Prince Edward Island Superintendency	14¼	306	35	1,087	½	.....	1	3½	½	3
Nova Scotia.										
Annapolis County	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Shelburne "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Digby "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
King's "	.....	.....	1	30	.....	.....	.....	.....	.....	.....
Queen's "	.....	.....	2	50	.....	.....	.....	.....	.....	.....
Halifax "	.....	.....	.....	25	.....	.....	.....	.....	.....	.....
Hants "	.....	.....	10	120	.....	.....	.....	.....	.....	.....
Colchester "	.....	.....	2	30	.....	.....	.....	.....	.....	.....
Cumberland "	.....	.....	½	.....	.....	.....	.....	.....	.....	.....
Pictou "	2	.....	5	.....	.....	.....	.....	.....	.....	.....
Antigonish and Guysborough Counties	.....	.....	3	80	.....	.....	.....	.....	.....	.....
Richmond County	.....	.....	2½	100	½	15	.....	.....	1¼	2
Inverness "	.....	.....	4	60	.....	.....	½	5	½	4
Victoria "	.....	.....	2	20	.....	.....	.....	.....	.....	.....

Cape Breton Agency										
Lunenburg "										
Cape Breton (Eskasoni)										
Total	2		32	515	½	15	½	5	¾	6
British Columbia.										
Cowichan Agency	26	770	401	14,340					33	735
West Coast "										
Kwawkewlth "										
Lower Fraser "	91	3,540	450	35,700	2	65	21¼	1,260	181	6,578
Williams Lake Agency	244	4,930	190	7,015	½	10			23	500
Kamloops-Okanagan Agency	1,991	38,020	2,154	44,655	12	250	18½	40	135	3,155
Kootenay Agency	60	990	890	15,380						
Northwest Coast Agency										
Babine and Upper Skeena River Agency										
Total	2,412	48,250	4,085	117,090	14½	325	39¾	1,300	372	10,968
Manitoba.										
Clandeboye Agency	94	1,465	58½	1,370	36	925	26	720		
Portage la Prairie Agency	390	4,134	82	2,173			½	10		
Manitowapah "										
Rat Portage (Buffalo Bay Band) Agency							½	25		
Norway House Agency			5	190	5	145				
The Pas Agency										
Total	484	5,599	145½	3,733	41	1,070	27	755		

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

AGRICULTURE, SEASON 1903.

Agency.	Grain, Roots and Fodder.—*Continued.*									
	Rye.		Buckwheat.		Beans.		Potatoes.		Carrots.	
	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Planted.	Bushels Harvested.	Acres Sown.	Bushels Harvested.
New Brunswick.										
Richibuctou Superintendency	....	...	.....	.....	.....	.....	200	7,525	.....	.....
Fredericton "	....	...	.....	41¾	1,178	6¼	121	42¾	2,350	.....	.....
Total	.....	.....	.....	41¾	1,178	6¼	121	242¾	9,875	.....	.....
Prince Edward Island.										
Prince Edward Island Superintendency	.....	.....	.....	.....	.....	½	2½	17	1,430	.....	.....
Nova Scotia.										
Annapolis County	.....	.....	.....	.....	.....	¼	4	2	175	.....	.....
Shelburne "	.....	.....	.....	.....	.....	.....	.....	*	120	.....	5
Digby "	.....	.....	.....	.....	.....	.....	.....	3½	160	.....	.....
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
King's "	.....	.....	.....	.....	.....	¼	4	2	200	.....	.....
Queen's "	.....	.....	.....	.....	.....	.....	.....	4	500	.....	.....
Halifax "	.....	10	.....	80	.....	.....	.....	.....	50	.....	.....
Hants "	¼	20	5	*	.....	.....	.....	.....	.....	.....	.....
Colchester "	.....	.....	.....	.....	.....	.....	.....	1	175	.....	.....
Cumberland "	.....	.....	½	.....	.....	.....	.....	4	.....	.....	.....
Pictou "	.....	.....	.....	.....	.....	.....	.....	10	.....	.....	.....
Antigonish and Guysborough Counties	.....	.....	.....	.....	.....	.....	.....	4	200	.....	.....
Richmond County	.....	.....	.....	.....	.....	¼	5	9	736	.....	.....
Inverness "	.....	.....	.....	.....	.....	¼	2	21	1,100	.....	.....

Victoria "							6	550			
Cape Breton "							¼				
Lunenburg "					½	12	5	640			
Cape Breton (Eskasoni)							20	250			
Total	¼	30	5½	80	1½	27	91¾	4,856		5	
British Columbia.											
Cowichan Agency							114	5,355			
West Coast "							4½	619	¼	50	
Kwawkewlth "							8½	680	1¼	200	
Lower Fraser "					19¾	681	273	45,747	15½	2,108	
Williams Lake Agency					3¾	131	236	13,880	12¾	730	
Kamloops-Okanagan Agency					81	1,635	306	38,500	33½	5,000	
Kootenay Agency							85	20,825			
Northwest Coast Agency							93	10,650			
Babine and Upper Skeena River Agency							318	41,150			
Total					104½	2,447	1,438	177,406	63¼	9,088	
Manitoba.											
Clandeboye Agency					7	170	138	13,800	1¼	40	
Portage la Prairie Agency							10	690			
Manitowapah "							32	3,968	¾	44	
Rat Portage (Buffalo Bay Band) Agency							1	150			
Norway House Agency							84	5,174			
The Pas Agency							47½	3,630			
Total					7	170	312½	27,412	2	84	

*Not given.

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

AGRICULTURE, SEASON 1903.

Agency.	Grain, Roots and Fodder—*Concluded.*							New Land Improvements.			
	Turnips.		Other Roots.		Hay.						
	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Cultivated.	Wild.	Other Fodder.	Land Cleared.	Land Broken.	Land Cropped for first time.	Land Fenced.
New Brunswick.					Tons.	Tons.	Tons.	Acres.	Acres.	Acres.	Acres.
Richibucto Superintendency	.....	.....	.....	.....	159	20	238	6	6	6	5
Fredericton "	2	375	4¼	175	113½	16	47	7	2	9	7
Total	2	375	4¼	175	272½	36	285	13	8	15	12
Prince Edward Island.											
Prince Edward Island Superintendency	¾	210	.....	.....	15	20	.....	5	3	3	3
Nova Scotia.											
Annapolis County	¼	50	.....	.....	4	3	.....	2	1	.....	1
Shelburne "	.....	20	.....	.....	3	3	.....	1	.....	.....	.....
Digby "	.....	.....	¼	8	11	.....	.....	.....	.....	.....	.....
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
King's "	.....	.....	.....	.....	.....	10	.....	.....	.....	.....	.....
Queen's "	.....	.....	1	40	25	15	12	1	.....	1	1
Halifax "	.....	50	.....	.....	9	4	.....	.....	.....	.....	.....
Hants "	.....	.....	.....	.....	90	25	10	5	5	10	10
Colchester "	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....
Cumberland "	.....	.....	.....	.....	3	.....	.....	.....	.....	¼	.....
Pictou "	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....
Antigonish and Guysborough Counties	1	100	.....	.....	40	3	3	.....	2	2	.....

Richmond County	½	25	.....	.....	35	25	.....	4	8	8	10
Inverness "	½	20	.....	.....	140	8	10	2	2	4	50
Victoria "	.....	.....	.....	.....	90	120	3	2	2	2	10
Cape Breton "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2¾
Lunenburg "	1	240	1	25	50	25	1	1½	1	2½	4
Cape Breton (Eskasoni)	.....	.....	.....	.....	250	.....	.....	.....	.....	.....	.....
Total	3¼	505	2¼	73	759	241	39	18½	21	29¾	88¾
British Columbia.											
Cowichan Agency	.....	.....	.....	.....	1,016	.....	.....	.....	4	.....	1
West Coast "	.....	.....	.....	.....	5	7	.....	3	.....	.....	.....
Kwawkewlth "	1¼	200	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lower Fraser "	33½	5,542	.....	.....	664	918	402	32	32	33	32
Williams Lake Agency	13½	1,040	7¾	695	455	851	1,198	5	.....	10	9½
Kamloops-Okanagan Agency	23	3,650	2	300	3,405	625	695	45	100	100	1,960
Kootenay Agency	.....	.....	.....	.....	335	310	108	105	105	105	105
Northwest Coast Agency	1½	300	.....	.....	20	200	.....	27	5	5	10
Babine and Upper Skeena River Agency	64	8,785	.....	.....	104	201	.....	46	36	30	55
Total	136¾	19,517	9¾	995	6,004	3,112	2,403	263	282	283	2,172½
Manitoba.											
Clandeboye Agency	1¼	38	1	31	5	5,150	.....	165	32	30	52
Portage la Prairie Agency	¼	20	1	50	.....	665	.....	.....	80	20	215
Manitowapah Agency	¼	97	¾	29	.....	3,555	.....	.....	11	.....	10
Rat Portage (Buffalo Bay Band) Agency	.....	.....	.....	.....	.....	21	.....	.....	.....	.....	.....
Norway House Agency	.....	.....	.....	.....	.....	1,267	.....	.....	14	13	20
The Pas Agency	.....	.....	.....	.....	.....	261	.....	2	5	3	7
Total	2¾	155	2¾	110	5	10,919	.....	167	142	66	304

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PROGRESS DURING THE FISCAL YEAR 1903.

Agency.	Buildings Erected.										
	Dwellings, Stone.	Dwellings, Brick.	Dwellings, Frame.	Dwellings, Log.	Shanties.	Barns.	Horse Stables.	Driving Houses.	Cattle Stables.	Pig Sties.	Store Houses.
New Brunswick.											
Richibucto Superintendency	.....	.....	10	.....	.....	3	.....	.....	.....	.....	.....
Fredericton "	.....	1	2	.....	.....	.....	.....	.....	.....	5	.....
Total	.....	1	12	.....	.....	3	.....	.....	.....	5	.....
Prince Edward Island.											
Prince Edward Island Superintendency	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Nova Scotia.											
Annapolis County	.....	.....	2	.....	1	.....	.....	.....	.....	.....	.....
Shelburne "	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
Digby "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yarmouth "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
King's "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Queen's "	.....	.....	.....	.....	.....	2	.....	.....	.....	2	.....
Halifax "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hants "	.....	.....	2	.....	1	.....	.....	.....	.....	.....	.....
Colchester "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumberland "	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....
Pictou "	.....	.....	2	.....	.....	1	.....	.....	.....	.....	.....
Antigonish and Guysborough Counties	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Richmond County	.....	.....	2	.....	.....	1	.....	.....	.....	1	.....
Inverness "	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
Victoria "	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Cape Breton "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Lunenburg "			1									
Cape Breton (Eskasoni)												
Total			12		5	4				3		
British Columbia.												
Cowichan Agency			1									
West Coast "			31				1					
Kwawkewlth "												
Lower Fraser "												
Williams Lake Agency				14								
Kamloops-Okanagan Agency			1	6								
Kootenay Agency			2	10			1		1			
Northwest Coast Agency			40									
Babine and Upper Skeena River Agency			8	10	2				4			
Total			83	40	2		2		5			
Manitoba.												
Clandeboye Agency				8			2		2	1	1	
Portage la Prairie Agency				12	1				7			
Manitowapah Agency				27					17		7	
Rat Portage (Buffalo Bay Band) Agency												
Norway House Agency				54								
The Pas Agency				19					3		1	
Total				120	1		2		29	1	9	

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PROGRESS DURING THE FISCAL YEAR 1904.

Agency.	Buildings Erected.			Increase in Value.		
	Root Houses.	Milk Houses.	Corn Cribs.	Value of Clearing, Cultivating and Fencing.	Value of Buildings.	Increased Value of Agricultural Products and Industries.
				$ cts.	$ cts.	$ cts.
New Brunswick.						
Richibucto Superintendency				90 00	760 00	850 00
Fredericton "				290 00	360 00	650 00
Total				380 00	1,120 00	1,500 00
Prince Edward Island.						
Prince Edward Island Superintendency				75 00	350 00	425 00
Nova Scotia.						
Annapolis County				40 00	100 00	140 00
Shelburne "				20 00	100 00	120 00
Digby "						
Yarmouth "						
King's "						
Queen's "				100 00	140 00	240 00
Halifax "						
Hants "				1,000 00	300 00	1,300 00
Colchester "						
Cumberland "					100 00	100 00
Pictou "					500 00	500 00
Antigonish and Guysborough Counties				25 00		25 00
ichmond County				170 00	150 00	320 00
Inverness "		1		408 00	320 00	728 00
Victoria "				100 00	50 00	150 00

Cape Breton "				20 00		20 00
Lunenburg "				50 00	50 00	100 00
Cape Breton (Eskasoni)						
Total		1		1,933 00	1,810 00	3,743 00
British Columbia.						
Cowichan Agency				125 00	150 00	275 00
West Coast "				8,180 00	5,940 00	14,120 00
Kwawkewlth Agency						
Lower Fraser "				1,517 00	8,600 00	10,117 00
Williams Lake "				1,035 00	1,600 00	2,635 00
Kamloops-Okanagan Agency				8,050 00	1,400 00	9,450 00
Kootenay Agency				1,030 00	800 00	1,830 00
Northwest Coast Agency	5			1,000 00	9,500 00	10,500 00
Babine and Upper Skeena River Agency				3,500 00	2,400 00	5,900 00
Total	5			24,437 00	30,390 00	54,827 00
Manitoba.						
Clandeboye Agency	1			925 00	925 00	1,850 00
Portage la Prairie Agency				560 00	570 00	1,130 00
Manitowapah Agency				43 00	1,190 00	1,233 00
Rat Portage (Buffalo Bay Band) Agency						
Norway House Agency				125 00	2,040 00	2,165 00
The Pas Agency				60 00	1,810 00	1,870 00
Total	1			1,713 00	6,535 00	8,248 00

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

SOURCES AND VALUE OF INCOME.

Agency.	Value of Farm Products, including Hay.	Wages Earned.	Received from Land Rentals.	The Estimated Value of Fish and Meat used for Food is included in these Columns.		Earned by Other Industries.	Total Income of Indians.
				Earned by Fishing.	Earned by Hunting.		
New Brunswick.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Richibucto Superintendency	7,425 00	23,750 00	.....	8,500 00	1,050 00	6,525 00	47,250 00
Fredericton "	5,071 50	25,800 00	20 00	305 00	6,950 00	12,050 00	50,196 50
Total	12,496 50	49,550 00	20 00	8,805 00	8,000 00	18,575 00	97,446 50
Prince Edward Island.							
Prince Edward Island Superintendency	1,830 00	280 00	.....	1,250 00	60 00	17,400 00	20,820 00
Nova Scotia.							
Annapolis County	150 00	550 00	.....	190 00	70 00	400 00	1,360 00
Shelburne "	133 00	1,300 00	.....	.....	100 00	100 00	1,633 00
Digby "	172 00	1,000 00	.....	75 00	700 00	600 00	2,547 00
Yarmouth "	.....	.....	.....	.....	.....	.....	.....
King's "	200 00	1,000 00	.....	.....	500 00	500 00	2,200 00
Queen's "	500 00	2,400 00	.....	460 00	650 00	400 00	4,410 00
Halifax "	195 00	.....	.....	.....	.....	.....	195 00
Hants "	2,000 00	1,000 00	.....	300 00	1,000 00	.....	4,300 00
Colchester "	152 50	2,400 00	.....	50 00	400 00	1,420 00	4,422 50
Cumberland "	1,200 00	2,500 00	.....	10 00	775 00	750 00	5,235 00
Pictou "	300 00	1,200 00	.....	500 00	.....	500 00	2,500 00
Antigonish and Guysborough Counties	525 00	1,000 00	6 00	400 00	60 00	5,800 00	7,791 00
Richmond County	535 00	2,500 00	.....	300 00	75 00	750 00	4,160 00
Inverness "	2,290 00	3,500 00	75 00	500 00	175 00	1,400 00	7,940 00
Victoria "	2,280 00	1,000 00	.....	600 00	400 00	5,000 00	9,280 00

Cape Breton "							
Lunenburg "	525 90	3,400 00		125 00	100 00	200 00	4,350 00
Cape Breton (Eskasoni)	2,000 00	3,000 00		1,000 00	500 00	2,500 00	9,000 00
Total	13,157 50	27,750 00	81 00	4,510 00	5,505 00	20,320 00	71,323 50
British Columbia.							
Cowichan Agency	30,220 00	26,200 00		39,100 00	6,025 00	1,675 00	103,220 00
West Coast "	504 00	12,500 00		34,950 00	5,130 00	53,300 00	106,384 00
Kwawkewlth "	540 00	30,860 00		29,190 00	6,200 00	7,200 00	73,990 00
Lower Fraser "	48,149 00	95,409 00	617 90	75,358 00	63,560 00	59,615 00	342,708 90
Williams Lake Agency	44,718 25	29,725 00		15,225 00	11,485 00	9,170 00	110,323 25
Kamloops-Okanagan Agency	107,288 50	130,500 00		37,100 00	34,600 00	38,000 00	347,488 50
Kootenay Agency	31,183 00	7,000 00		1,125 00	6,100 00	1,350 00	46,758 00
Northwest Coast Agency	11,900 00	54,850 00	50 00	103,250 00	35,550 00	24,650 00	230,250 00
Babine and Upper Skeena River Agency	20,575 00	38,650 00		18,400 00	47,750 00	32,250 00	157,625 00
Total	295,077 75	425,694 00	667 90	353,698 00	216,400 00	227,210 00	1,518,747 65
Manitoba.							
Clandeboye Agency	19,500 00	13,000 00		13,000 00	7,500 00	4,500 00	57,500 00
Portage la Prairie Agency	4,637 00	6,000 00		450 00	5,450 00	5,000 00	21,537 00
Manitowapah Agency	8,328 00	9,920 00		9,590 00	14,905 00	5,116 00	47,859 00
Rat Portage (Buffalo Bay Band) Agency	151 50	750 00		279 00	483 00	289 25	1,952 75
Norway House Agency	14,720 00	2,400 00		15,300 00	15,800 00	1,825 00	50,045 00
The Pas Agency	4,060 00	6,805 00		3,390 00	30,050 00	780 00	45,085 00
Total	51,396 50	38,875 00		42,009 00	74,188 00	17,510 25	223,978 75

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

REALTY OF INDIANS.

Agency.	Land.		Public Buildings, Property of the Band.						Private Fencing and Buildings.				
	Cleared, including natural pasturage.	Cultivated, including made pasturage.	Churches.	Council Houses.	School Houses.	Driving Sheds.	Other Buildings.	Ferries.	Acres Fenced.	Dwellings, Stone.	Dwellings, Brick.	Dwellings, Frame.	Dwellings, Log.
Northwest Territories.	Acres.	Acres.											
Touchwood Hills Agency, Treaty No. 4	91,4 2	609	1	.....	4	3	.....	.....	4,020	.....	.....	.....	100
Birtle " " 4	52,551	11,901	4	.....	2	2	2	1	13,157	.....	.....	22	98
Pelly " " 4	47,085	692	3	.....	3	3	11	....	361	.....	.....	.....	41
Qu'Appelle " " 4	161,949	4,812	.....	.....	.....	.....	2	....	18,981½	.....	.....	.....	178
Assiniboine " " 4	23,094	400	.....	.....	.....	.....	.....	.....	6,410	.....	.....	.....	35
Crooked Lakes " " 4	161,343	1,148	.....	.....	.....	.....	1	.....	1,720	.....	.....	.....	116
Moose Mountain " " 4	10,404	384	.....	.....	1	.....	2	.....	1,280	.....	.....	.....	49
Saddle Lake " " 6	72,870¾	389¼	.....	.....	4	.....	2	.....	930	.....	.....	.....	149
Hobbema " " 6	68,600	1,260	.....	.....	1	.....	1	.....	880	.....	.....	.....	86
Battleford " " 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Onion Lake " " 6	143,066	160	.....	.....	1	.....	1	.....	165	.....	.....	1	87
Duck " " " 6	79,868	1,680	2	.....	3	.....	.....	1	2,330	.....	.....	.....	113
Edmonton " " 6	38,014¼	1,330	.....	.....	4	.....	2	.....	2,028	.....	.....	.....	21
Carlton " " 6	141,967	1,061	2	.....	9	.....	4	.....	1,029	.....	.....	.....	74
Sarcee " " 7	58,870	250	1	1	1	.....	1	.....	400	.....	.....	1	52
Blood " " 7	349,275½	51	.....	.....	3	.....	2	.....	1,200	.....	.....	3	210
Blackfoot " " 7	300,094¼	125¾	.....	.....	.....	.....	.....	.....	10,520	.....	.....	8	141
Peigan " " 7	114,016	2,830	.....	.....	1	.....	3	.....	2,830	.....	.....	21	92
Stony " " 7	45,530	190	1	.....	2	1	.....	.....	11,000	.....	.....	.....	129
Total	1,960,049¾	29,273	14	1	39	9	34	2	79,241½	.....	.....	56	1,771

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

REALTY OF INDIANS—*Concluded.*

Agency.	Private Buildings.									
	Shanties.	Barns.	Horse Stables.	Driving Houses.	Cattle Stables.	Pig Sties.	Store Houses.	Root Houses.	Milk Houses.	Corn Cribs.
Northwest Territories.										
Touchwood Hills Agency, Treaty No. 4	21	3	53	1	101	4	13	.....	3	.....
Birtle " " 4	67	6	95	11	123	7	52	19	5	.....
Pelly " " 4	44	.....	33	.....	79	.....	14	.....	6	.....
Qu'Appelle " " 4	.....	.....	58	.....	155	2	.....	2	1	19
Assiniboine " " 4	.....	.....	5	.....	22	.....	.....	.....	.....	.....
Crooked Lakes " " 4	4	.....	13	.....	87	6	18	108	.....	.....
Moose Mountains " " 4	.....	.....	15	.....	48	.....	2	.....	.....	.....
Saddle Lake " " 6	.....	.....	.....	.....	128	.....	10	1	.....	.....
Hobbema " " 6	14	.....	44	.....	34	5	20	55	.....	.....
Battleford " " 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Onion Lake " " 6	.....	.....	.....	.....	59	.....	.....	.....	.....	.....
Duck " " " 6	.....	.....	19	.....	146	4	34	.....	.....	.....
Edmonton " " 6	67	.....	25	6	67	11	4	16	6	12
Carlton " " 6	165	1	65	.....	120	1	35	7	6	.....
Sarcee " " 7	.....	.....	25	1	15	.....	2	.....	2	.....
Blood " " 7	.....	.....	70	.....	100	.....	.....	18	.....	.....
Blackfoot " " 7	.....	.....	53	.....	66	1	.....	4	1	.....
Peigan " " 7	.....	.....	36	.....	25	.....	4	20	2	.....
Stony " " 7	.....	.....	42	.....	20	.....	.....	20	.....	.....
Total	382	10	651	19	1,395	41	208	270	42	31

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS.

Agency.	Agricultural Implements, Vehicles, &c.										
	Ploughs.	Harrows.	Seed Drills.	Cultivators.	Land Rollers.	Mowers.	Reapers.	Horse Rakes.	Fanning Mills.	Threshing Machines.	Tool Chests.
Northwest Territories.											
Touchwood Hills Agency, Treaty No. 4	36	20	5	1	.....	44	5	35	.....	3	3
Birtle " " 4	35	80	29	10	5	58	46	52	9	2	1
Pelly " " 4	31	22	2	.....	.....	27	2	28	1	1	5
Qu'Appelle " " 4	126	63	19	2	2	59	16	46	8	20	5
Assiniboine " " 4	25	9	3	.....	.....	15	.....	6	1	1	.....
Crooked Lakes " " 4	97	47	11	.....	11	39	13	26	7	.....	.....
Moose Mountain " " 4	27	21½	2	.....	1	11	3	10	1	1	3
Saddle Lake " " 6	22	14	.....	.....	2	28	1	24	.....	.....	.....
Hobbema " " 6	98	44	3	2	5	31	5	20	1	.....	4
Battleford " " 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Onion Lake " " 6	23	14	.....	.....	.....	34	.....	27	.....	.....	1
Duck " " 6	92	46	10	.....	.....	37	11	38	2	.....	9
Edmonton " " 6	64	36	7	1	1	31	9	29	1	2	3
Carlton " " 6	70	46	.....	.....	.....	31	8	29	3	1	4
Sarcee " " 7	5	2	1	1	1	12	.....	8	.....	.....	.....
Blood " " 7	7	2	.....	.....	.....	70	.....	72	.....	.....	7
Blackfoot " " 7	48	19	1	2	1	60	1	57	.....	1	.....
Peigan " " 7	35	6	.....	.....	.....	37	.....	34	.....	.....	.....
Stony " " 7	22	6	.....	.....	.....	21	.....	21	.....	.....	.....
Total	863	497½	93	19	29	645	120	562	34	32	45

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS—*Continued.*

Agency.	Agricultural Implements, Vehicles, &c.—*Concluded.*							Value of Implements and Vehicles.
	Other Implements.	Wagons.	Carts.	Sleighs, Draught.	Sleighs, Driving.	Democrat Wagons.	Buggies and Road Carts.	
								$ cts.
Northwest Territories.								
Touchwood Hills Agency, Treaty No. 4	204	68	33	60	38	3	10	8,921 50
Birtle " " 4	1,360	134	25	96	86	58	92	28,163 00
Pelly " " 4	365	50	26	38	16	4	19	6,725 00
Qu'Appelle " " 4	1,245	133	49	104	37	18	40	23,559 00
Assiniboine " " 4	50	27	6	21	.....	1	3	3,955 00
Crooked Lakes " " 4	688	59	32	44	.....	1	38	12,493 00
Moose Mountain " " 4	432	38	11	20	25	6	20	5,690 00
Saddle Lake " " 6	685	56	14	78	.....	2	9	9,310 00
Hobbema " " 6	530	84	59	79	81	7	9	9,390 00
Battleford " " 6	.....	.....	.....	.....	.....	.....	.....	.....
Onion Lake " " 6	600	54	11	46	.....	.....	17	5,800 00
Duck " " " 6	1,425	55	26	42	41	.....	31	15,524 00
Edmonton " " 6	265	39	.....	49	9	1	5	8,618 00
Carlton " " 6	1,525	66	33	83	82	7	21	10,656 00
Sarcee " " 7	250	23	7	13	10	5	4	3,000 00
Blood " " 7	2,000	246	469	268	.....	34	50	39,736 00
Blackfoot " " 7	240	102	.....	26	37	11	34	9,525 00
Peigan " " 7	310	113	1	.....	.....	21	18	10,939 00
Stony 1 " 7	40	54	.....	40	.....	3	7	6,854 00
Total	12,214	1,401	802	1,107	462	182	427	218,858 50

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS—*Continued.*

Agency.	Live Stock and Poultry.											
	Horses.			Cattle.					Other Stock.			
	Stallions and Geldings.	Mares.	Colts, Fillies and Foals.	Bulls.	Oxen, Work.	Steers.	Cows, Milch.	Young Stock.	Sheep.	Lambs.	Boars, Breeding.	
Northwest Territories.												
Touchwood Hills Agency, Treaty No. 4	174	199	54	13	29	47	349	586	.....	.....	2	
Birtle " " 4	290	166	58	14	30	175	258	288	6	.....	1	
Pelly " " 4	59	64	30	17	41	188	197	329	43	10	.....	
Qu'Appelle " " 4	370	200	94	12	50	128	371	792	.....	.....	.....	
Assiniboine " " 4	49	51	35	2	26	28	37	54	.....	.....	.....	
Crooked Lakes " " 4	126	107	49	10	56	87	217	353	31	.....	.....	
Moose Mountain " " 4	54	55	31	4	32	32	73	150	.....	.....	.....	
Saddle Lake " " 6	125	130	21	14	46	101	200	274	47	22	.....	
Hobbema " " 6	.....	540	.....	.....	14	65	334	511	.....	.....	.....	
Battleford " " 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Onion Lake " " 6	75	73	47	5	77	124	395	412	.....	.....	.....	
Duck Lake " " 6	189	65	66	.....	69	72	337	570	25	.....	.....	
Edmonton " " 6	112	120	8	3	35	67	190	259	.....	.....	2	
Carlton " " 6	114	111	40	.....	96	115	304	480	.....	.....	.....	
Sarcee " " 7	250	250	100	.....	2	39	56	73	.....	.....	.....	
Blood " " 7	6	3,021	.....	100	.....	251	1,274	2,455	868	.....	.....	
Blackfoot " " 7	2,410	14	5	34	.....	340	865	563	.....	.....	.....	
Peigan " " 7	300	440	300	.....	.....	167	680	1,093	.....	.....	.....	
Stony " " 7	.....	1,000	.....	.....	.....	71	279	366	.....	.....	.....	
Total	4,703	6,606	938	228	603	2,097	6,416	9,508	1,020	32	5	

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS—*Continued.*

Agency.	Live Stock and Poultry.						Value of Live Stock and Poultry.	General Effects.		
	Other Stock—*Con.*		Poultry.							
	Sows, Breeding.	Pigs.	Turkeys.	Geese.	Ducks.	Cocks and Hens.		Sail Boats.	Row Boats.	Canoes.
NORTHWEST TERRITORIES.							$ cts.			
Touchwood Hills Agency, Treaty No. 4	6	22	.....	.....	.....	.....	42,894 00	.....	.....	1
Birtle " " 4	2	27	7	.....	63	760	39,130 00	1	5	11
Pelly " " 4	.....	.....	.....	6	15	140	29,224 00	.....	1	.....
Qu'Appelle " " 4	.....	5	.....	.....	.....	.....	73,725 02	.....	6	.....
Assiniboine " " 4	.....	.....	.....	2	.....	120	6,423 00	.....	.....	.....
Crooked Lakes " " 4	.....	.....	.....	.....	.....	.....	19,529 00	.....	.....	.....
Moose Mountain " " 4	.....	.....	.....	.....	.....	.....	14,963 00	.....	.....	.....
Saddle Lake " " 6	.....	26	.....	.....	.....	.....	25,055 00	1	19	70
Hobbema " " 6	.....	4	.....	.....	.....	160	24,963 00	.....	.....	3
Battleford " " 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Onion Lake " " 6	.....	.....	.....	.....	.....	.....	30,665 00	.....	.....	56
Duck Lake " " 6	.....	.....	75	.....	60	1,025	47,190 50	.....	3	13
Edmonton " " 6	14	25	13	.....	1	118	23,447 00	.....	1	26
Carlton " " 6	8	29	.....	.....	.....	137	34,321 95	.....	6	209
Sarcee " " 7	.....	.....	.....	.....	.....	125	11,000 00	.....	.....	.....
Blood " " 7	.....	.....	.....	.....	.....	.....	154,788 00	.....	1	.....
Blackfoot " " 7	.....	.....	.....	.....	.....	.....	7,690 00	.....	13	.....
Peigan " " 7	.....	.....	.....	.....	.....	.....	60,541 00	.....	6	.....
Stony " " 7	.....	.....	.....	.....	.....	.....	34,925 00	.....	.....	.....
Total.	30	138	95	8	139	2,585	680,474 47	2	61	389

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PERSONALTY OF INDIANS—*Continued.*

Agency.	General Effects—*Concluded.*						Household Effects.	Value of Real and Personal Property.
	Rifles.	Shot Guns.	Nets.	Steel Traps.	Tents.	Value of	Value of.	
						$ cts.	$ cts.	$ cts.
Northwest Territories.								
Touchwood Hills Agency, Treaty No. 4	62	115	6	2,019	192	1,482 55	2,865 00	439,862 80
Birtle " " 4	67	129	10	1,630	169	3,247 00	7,630 00	491,698 00
Pelly " " 4	12	53	5	280	67	1,033 00	4,080 00	486,427 00
Qu'Appelle " " 4	29	81	26	196	173	2,305 00	8,089 00	1,372,557 32
Assiniboine " " 4	10	30	.....	25	32	244 00	370 00	153,505 35
Crooked Lakes " " 4	2	27	12	6	107	658 00	1,630 00	598,407 00
Moose Mountain " " 4	8	33	4	82	49	994 30	1,705 00	219,476 30
Saddle Lake " " 6	16	114	113	1,463	115	3,847 00	2,768 00	244,650 00
Hobbema " " 6	20	97	110	261	127	1,470 00	1,810 00	319,403 00
Battleford " " 6	.....	.....	.....	.....	.....	.....	.....	.....
Onion Lake " " 6	36	85	60	950	148	4,785 00	3,100 00	382,965 00
Duck Lake " " 6	28	107	36	1,560	121	5,107 00	11,250 00	387,782 50
Edmonton " " 6	21	85	39	1,458	93	2,330 00	2,200 00	520,316 00
Carlton " " 6	105	232	223	3,110	230	8,801 50	4,220 00	537,790 95
Sarcee " " 7	10	7	.....	20	55	500 00	2,000 00	290,500 00
Blood " " 7	40	10	.....	40	160	2,035 00	6,000 00	1,326,224 00
Blackfoot " " 7	47	41	.....	22	220	2,919 00	2,800 00	1,271,091 00
Peigan " " 7	20	35	.....	.....	97	1,069 00	3,700 00	592,633 00
Stony " " 7	125	32	5	205	130	3,482 00	10,500 00	207,961 00
Total	658	1,313	649	13,327	2,285	46,309 35	76,717 00	9,843,250 22

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

AGRICULTURE, SEASON 1903.

Agency.	Grain, Roots and Fodder.									
	Wheat.		Oats.		Barley.		Corn.		Pease.	
	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.
Northwest Territories.										
Touchwood Hills Agency, Treaty No. 4	115	1,651	177	4,315	4	.....	.....	.....	.....	.....
Birtle " " 4	2,696	42,393	789	16,603	14	253	18	139	.....	.....
Pelly " " 4	.....	.....	295	8,484	5	150	.....	.....	.....	.....
Qu'Appelle " " 4	1,823	33,209	826	22,333	6	109	5	75	.....	.....
Assiniboine " " 4	275	4,000	25	400	.....	.....	¼	7	.....	.....
Crooked Lakes " " 4	472	8,806	134	4,559	3	150	.....	.....	.....	.....
Moose Mountain " " 4	186	1,020	34	1,390	10	*	.....	.....	.....	.....
Saddle Lake " " 6	116	883	198	4,200	49½	827	.....	.....	.....	.....
Hobbema " " 6	246	2,502	160	3,910	2	42	.....	.....	.....	.....
Battleford " " 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Onion Lake " " 6	18	52	86	735	16	207	.....	.....	.....	.....
Duck Lake " " 6	613	8,570	344	5,383	28	505	.....	.....	.....	.....
Edmonton " " 6	196	2,337	456	8,383	48	510	.....	.....	.....	.....
Carlton " " 6	327	3,666	255	4,313	9¾	234	.....	.....	.....	.....
Sarcee " " 7	1½	.....	170	3,721	.....	.....	.....	.....	.....	.....
Blood " " 7	.....	.....	.....	*	.....	.....	.....	.....	.....	.....
Blackfoot " " 7	.....	.....	99	2,242	2	40	.....	.....	.....	.....
Peigan " " 7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stony " " 7	.....	.....	190	*	.....	.....	.....	.....	.....	.....
Total	7,084½	109,089	4,238	90,971	197¼	3,027	23¼	221	.....	.....

* Not given.

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

AGRICULTURE, SEASON 1903—*Continued.*

Agency.	Grain, Roots and Fodder—*Continued.*									
	Rye.		Buckwheat.		Beans.		Potatoes.		Carrots.	
	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.
Northwest Territories.										
Touchwood Hills Agency, Treaty No. 4	.....	.....	.....	.....	.....	.....	20¼	1,377	3	172
Birtle " " 4	.....	.....	.....	.....	.....	.....	43½	4,098	.....	.....
Pelly " " 4	.....	.....	.....	.....	.....	.....	15	1,800	2	120
Qu'Appelle " " 4	.....	.....	.....	.....	.....	.....	37¼	4,014	½	65
Assiniboine " " 4	.....	.....	.....	.....	.....	.....	5	1,200	2	135
Crooked Lakes " " 4	.....	.....	.....	.....	.....	.....	17	2,055	.....	.....
Moose Mountain " " 4	.....	.....	.....	.....	.....	.....	4	405	1	60
Saddle Lake " " 6	1½	.....	.....	.....	.....	.....	28¼	1,970	.....	.....
Hobbema " " 6	.....	.....	.....	.....	.....	.....	10	900	4¼	385
Battleford " " 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Onion Lake " " 6	.....	.....	.....	.....	.....	.....	14	1,790	6	Gardens
Duck Lake " " 6	.....	.....	.....	.....	.....	.....	15½	2,155	4	211
Edmonton " " 6	.....	.....	.....	.....	.....	.....	22	1,325	3	192
Carlton " " 6	.....	.....	.....	.....	.....	.....	10¾	1,094	¼	21
Sarcee " " 7	.....	.....	.....	.....	.....	.....	6¼	1,000	.....	.....
Blood " " 7	.....	.....	.....	.....	.....	.....	4	300	.....	.....
Blackfoot " " 7	.....	.....	.....	.....	.....	.....	6½	310	4½	100
Peigan " " 7	.....	.....	.....	.....	.....	.....	8	1,000	.....	.....
Stony " " 7	.....	.....	.....	.....	.....	.....	15	190	1	27
Total	1½	.....	.....	.....	.....	.....	282¼	26,983	31½	1,488

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

AGRICULTURE, SEASON 1903.

Agency.	Grain, Roots and Fodder—*Concluded.*							New Land Improvements.			
	Turnips.		Other Roots.		Hay.		Other Fodder.	Land Cleared.	Land Broken.	Land Cropped for first time.	Land Fenced.
	Acres Sown.	Bushels Harvested.	Acres Sown.	Bushels Harvested.	Cultivated.	Wild.					
Northwest Territories.					Tons.	Tons.	Tons.	Acres.	Acres.	Acres.	Acres.
Touchwood Hills Agency, Treaty No 4	6¼	466	3	185	... ...	2,794	335	2	121	77	134
Birtle " " 4	.....	.....	11¾	427	11	2,764	2,080	.....	532	762	... ...
Pelly " " 4	2¾	460	1¼	215	.....	2,330	749	.....	221	93	93
Qu'Appelle " " 4	11	1,147	2½	243	.....	4,235	5,298	.....	495	1,369	.....
Assiniboine " " 4	2	200	1	75	.....	350	100	.....	35	75	.....
Crooked Lakes " " 4	4	500	... ..	.....	.....	1,755	850	.....	40	.....	100
Moose Mountain " " 4	5	680	.....	.....	.....	780	900	.....	50	84	18,000
Saddle Lake " " 6	... ..	.....	.....	.....	.....	2,447	.....	.....	122	... ...	.....
Hobbema " " 6	6	600	3½	315	... ...	4,650	925	.....	105	100	145
Battleford " " 6	.....	... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Onion Lake " " 6	.....	... ..	.....	.....	.....	1,850	100	.....	7	.....	.....
Duck Lake " " 6	8	676	4½	103½	.....	3,531	1,970	.....	243	243	830
Edmonton " " 6	3½	279	1	50	7	1,788	390	.....	4	46	70
Carlton " " 6	¾	66	1¾	52½	.....	1,707	215	.....	71	44	.....
Sarcee " " 7	5¼	600	10	200	50	900	50	.....	50	30	60
Blood " " 7	... ...	... ..	.....	.....	.....	3,500	.....	.....	25	.....	500
Blackfoot " " 7	4½	296	2¼	33	5	2,000	100	... ..	.....	2	1,000
Peigan " " 7	... ...	.....	.....	.....	... ..	1,000	.....	.....	.....	.....	.....
Stony " " 7	2	95	.....	.....	... ..	600	300	... ...	10	10	10
Total	61	6,065	42½	1,899	73	38,981	14,362	2	2,131	2,935	20,942

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Continued.*

PROGRESS DURING THE FISCAL YEAR ENDED JUNE 30, 1904.

Agency.	Buildings Erected.											Increase in Value.		
	Dwellings, Frame.	Dwellings, Log.	Shanties.	Barns.	Horse Stables.	Driving Houses.	Cattle Stables.	Pig Sties.	Store Houses.	Root Houses.	Milk Houses.	Value of Clearing, Cultivating and Fencing.	Value of Buildings.	Increased value of Agricultural Products and Industries.
												$ cts.	$ cts.	$ cts.
Northwest Territories.														
Touchwood Hills Agency, Treaty No. 4	....	11	29	2	11	1	27	3	....	....	6	2,571 00	2,035 00	4,606 00
Birtle " " 4	....	13	3	3	8	3	6	1	4	1	....	2,874 00	935 00	3,809 00
Pelly " " 4	..	2	4	....	3	....	5	....	....	....	....	1,052 00	705 00	1,757 00
Qu'Appelle " " 4	11	....	....	....	....	....	....	....	....	....	....	3,495 00	960 00	4,455 00
Assiniboine " " 4	....	....	....	....	....	....	....	....	....	....	....	705 00	.....	705 00
Crooked Lakes " " 4	....	....	....	....	....	....	....	....	....	....	....	173 00	.....	173 00
Moose Mountain " " 4	....	5	..	....	....	....	....	.	....	....	....	2,482 00	1,050 00	3,532 00
Saddle Lake " " 6	....	4	....	....	....	....	....	..	....	....	.	366 00	200 00	566 00
Hobbema " " 6	...	17	....	....	9	....	12	....	....	....	1	265 00	1,960 00	2,225 00
Battleford " " 6	....	....	....	....	....	....	....	....	....	....	....	.....	.....	.....
Onion Lake " " 6	....	2	....	....	....	....	2	....	....	....	....	30 00	90 00	120 00
Duck Lake " " 6	....	3	....	....	5	..	1	....	1	....	....	6,510 00	1,650 00	8,160 00
Edmonton " " 6	....	....	....	....	....	....	....	....	....	....	....	160 00	.....	160 00
Carlton " " 6	....	6	9	....	1	....	....	....	5	1	...	164 00	805 00	969 00
Sarcee " " 7	....	5	....	....	7	....	9	....	....	....	2	.....	1,000 00	1,000 00
Blood " " 7	....	10	....	....	....	....	....	....	....	....	....	1,075 00	750 00	1,825 00
Blackfoot " " 7	3	7	....	....	7	....	20	1	....	....	....	260 00	580 00	840 00
Peigan " " 7	2	3	....	....	2	....	1	....	....	.	....	1,280 00	720 00	2,000 00
Stony " " 7	....	2	....	.	5	....	....	....	....	....	....	160 00	150 00	310 00
Total	16	90	45	5	58	4	83	5	10	2	9	23,622 00	13,590 00	37,212 00

AGRICULTURAL AND INDUSTRIAL STATISTICS—*Concluded.*

SOURCES AND VALUE OF INCOME.

Agency.	Value of Farm Products, including Hay.	Wages Earned.	Received from Land Rentals.	The Estimated Value of Fish and Meat Used for Food is included in these Columns.		Earned by other Industries.	Total Income of Indians.
				Earned by Fishing.	Earned by Hunting.		
Northwest Territories.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	
Touchwood Hills Agency, Treaty No. 4	13,453 83	3,652 00	. . . . .	1,365 00	18,732 50	2,687 90	39,891 23
Birtle " " 4	40,382 60	13,190 00	. . . . .	1,095 00	6,043 00	4,080 00	64,790 60
Pelly " " 4	11,227 60	4,657 14	. . . . .	200 00	5,100 00	7,328 80	28,513 54
Qu'Appelle " " 4	53,007 83	13,510 00	. . . . .	2,285 00	3,380 00	17,180 56	89,363 39
Assiniboine " " 4	3,700 00	3,500 00	. . . . .	. . . . .	750 00	2,500 00	10,450 00
Crooked Lakes " " 4	11,532 08	1,315 00	. . . . .	745 00	145 50	6,482 20	20,219 78
Moose Mountain " " 4	5,494 00	898 75	. . . . .	600 00	1,560 00	4,245 70	12,798 45
Saddle Lake " " 6	14,785 80	1,173 00	. . . . .	2,045 00	10,113 80	3,518 35	31,635 95
Hobbema " " 6	20,650 00	1,310 00	. . . . .	1,695 00	1,555 00	720 00	25,930 00
Battleford " " 6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Onion Lake " " 6	9,080 00	6,080 00	. . . . .	2,500 00	25,000 00	8,600 00	51,260 00
Duck Lake " " 6	35,167 25	3,600 00	. . . . .	3,460 00	19,918 00	4,151 16	66,296 41
Edmonton " " 6	11,260 00	1,450 00	. . . . .	1,325 00	9,700 00	6,500 00	30,235 00
Carlton " " 6	15,135 75	5,497 00	. . . . .	18,125 00	46,265 22	2,780 00	87,802 97
Sarcee " " 7	6,000 00	1,500 00	. . . . .	100 00	200 00	3,000 00	10,800 00
Blood " " 7	23,569 33	6,082 25	5,000 00	. . . . .	. . . . .	12,247 20	46,898 78
Blackfoot " " 7	8,000 00	15,000 00	. . . . .	15 00	175 00	10,000 00	33,190 00
Peigan " " 7	3,000 00	2,000 00	1,500 00	40 00	65 00	9,101 00	15,706 00
Stony " " 7	2,834 00	4,000 00	. . . . .	. . . . .	3,000 00	8,693 00	18,527 00
Total	288,280 07	88,415 14	6,500 00	35,595 00	151,703 02	113,815 87	684,309 10

INDIAN WOMEN WHO HAVE COMMUTED THEIR ANNUITY BY A TEN YEARS' PURCHASE ($50) UNDER SECTION 11 OF THE INDIAN ACT.

Commutations, 1903-4.

Treaty No. 1.

St. Peter's Band—Mrs. Isabella Hogaboam, No. 571.
" Mary Asham Clemons, No. 790.
" Mrs. Josiah Sanderson, No. 539.
" Sarah Ann Cochrane Sutherland, No. 781.
" Isabella Slater Clode, No. 374.

Treaty No. 2.

Little Saskatchewan—Christie Hourie, No. 34.
Waterhen River—Mrs. Wm. Fagnan, No. 53.
Lake Manitoba—Mrs. J. B. Sinclair, No. 68.

Treaty No. 3.

Islington Band—Mary Jourdain, No. 56.

Treaty No. 4.

Keeseekoowenin's—Mary Ann Hoyer, No. 20.
Peepeekesis—Matilda Listner, No. 52.
Black Bear's—Emerance Bellegarde. No. 57.

Treaty No. 5.

Norway House—Eveline Beechan Folster, No. 330.
Berens River—Mrs. Jacob Berens, jr., No. 178
The Pas—Mrs. Zaccheus Buck, No. 297.

Treaty No. 6.

Michel's Band—Emilie Gaucher Belcourt, No. 38.

RETURN A (1)

OF

OFFICERS AND EMPLOYEES OF THE DEPARTMENT OF INDIAN AFFAIRS

INSIDE AND OUTSIDE SERVICE

ON JULY 1, 1904

RETURN A (1)—Of Officers and Employees of the Department of Indian Affairs on July 1, 1904.

HEADQUARTERS—INSIDE SERVICE.

Name.	Rank.	Annual Salary.	Date of Present Rank.	Date of First Appointment to Civil Service.
		$		
Hon. Clifford Sifton	Superintendent General		Holds this office combined with that of Minister of the Interior.	
Francis Pedley	Deputy Superintendent General	4,000	Nov. 21, 1902	Sept. 1, 1897
John D. McLean	Chief Clerk and Secretary	2,450	July 1, 1897	Oct. 1, 1876
Samuel Stewart	" Assistant Secretary	2,050	Dec. 30, 1898	July 1, 1879
Duncan C. Scott	Chief Clerk and Accountant	2,250	July 6, 1893	Oct. 8, 1880
Fred'k H. Paget	"	1,900	" 1, 1904	June 5, 1885
James B. Harkin	Private Secretary to Supt. General	1,550	" 1, 1902	Dec. 2, 1901
William A. Orr	First Class Clerk, in charge of Land and Timber Branch	1,700	Aug. 1, 1894	Nov. 24, 1883
John McGirr	First Class Clerk	1,850	Oct. 14, 1891	Aug. 1, 1877
Robert G. Dalton	"	1,700	Nov. 29, 1893	Sept. 12, 1871
Samuel Bray, D.L.S.	"	1,650	July 1, 1899	June 14, 1884
Alfred E. Kemp	"	1,500	Aug. 2, 1902	Feb. 1, 1884
Henry C. Ross	Second Class Clerk	1,450	July 1, 1886	Jan. 10, 1883
Edwin Rochester	"	1,450	June 5, 1890	Jan. —, 1882
James J. Campbell	"	1,450	Aug. 1, 1894	Dec. 30, 1886
Hiram McKay	"	1,400	Sept. 11, 1894	July 9, 1880
Martin Benson	"	1,400	Dec. 1, 1884	April 1, 1876
Henry J. Brook	"	1,300	July 1, 1898	Jan. 1, 1871
John D. Sutherland	"	1,300	Jan. 11, 1899	Dec. 29, 1896
John W. Shore	"	1,300	July 1, 1899	Mar. 24, 1884
Geo. M. Matheson	"	1,250	Jan. 30, 1903	June 21, 1888
Robert B. E. Moffat	"	1,250	" 30, 1903	Feb. 7, 1891
Joseph Delisle	Junior Second Class Clerk	1,050	July 1, 1900	June 23, 1880
Fannie Yeilding	" "	1,050	" 1, 1900	April 3, 1882
Caroline Reiffenstein	" "	1,050	" 1, 1900	Nov. 24, 1883
Edith H. Lyon	" "	1,000	" 1, 1900	May 31, 1890
Helen G. Ogilvy	" "	1,000	" 1, 1900	June 30, 1890
Mary D. Maxwell	" "	1,000	" 1, 1900	May 31, 1890
Floretta K. Maracle	" "	1,000	" 1, 1900	Jan. 31, 1891
Frederick R. Byshe	" "	1,000	" 1, 1900	Mar. 26, 1891
Louisa E. Dale	" "	1,000	" 1, 1900	July 21, 1891
James Guthrie	" "	950	" 1, 1900	" 21, 1891
Thos. P. Moffatt	" "	950	" 1, 1900	Oct. 14, 1891
Alice M. S. Graham	" "	950	" 1, 1900	Nov. 28, 1893
Emma S. Martin	" "	850	" 1, 1900	Sept. 11, 1894
Chas. A. Cooke	" "	850	" 1, 1901	April 1, 1893
Sarah M. O'Grady	" "	850	" 1, 1901	Oct. 12, 1896
Peter Jos. O'Connor	" "	850	" 1, 1901	Feb. 15, 1898
Herbert N. Awrey	" "	850	Jan. 21, 1902	Jan. 21, 1902
Alex. F. MacKenzie	" "	850	Nov. 13, 1902	Nov. 13, 1902
Geo. A. Conley	" "	850	Jan. 30, 1903	Jan. 30, 1903
Selwyn E. Sangster	" "	850	April 1, 1903	April 1, 1903
Wm. Edwin Allan	" "	800	July 15, 1901	July 15, 1901
Helen M. O'Donohoe	" "	800	" 1, 1904	Jan. 2, 1901
David Morin	" "	800	" 1, 1904	July 1, 1901
Margaret H. Brennan	Writer	625	Nov. 19, 1896	Nov. 19, 1896
Gertrude A. Gorrell	"	570	May 26, 1899	May 26, 1899
Audrey S. Jones	"	565	Jan. 22, 1900	Jan. 22, 1900
Sarah E. Whitehead	"	550	May 14, 1900	May 14, 1900
Effie K. McLatchie	"	550	July 1, 1901	July 1, 1901
Benjamin Hayter	Packer	650	" 26, 1892	Oct. 18, 1887
William Seale	Messenger	620	Mar. 18, 1893	Mar. 18, 1893
John Ackland	"	550	July 28, 1899	July 28, 1899

SESSIONAL PAPER No. 27

RETURN A (1)—Of Officers and Employees of the Department of Indian Affairs on July 1, 1904.

OFFICERS OF OUTSIDE SERVICE AT HEADQUARTERS.

Name.	Rank.	Annual Salary.	Date of Present Rank.	Date of First Appointment to Civil Service.
		$		
Jas. Ansdell Macrae.	Inspector of Indian Agencies and Reserves..	1,800	Oct. 1, 1892	June 14, 1881
Geo. L. Chitty	Inspector of Timber.	1,200	June 21, 1893	" 21, 1893
P. H. Bryce, M.D...	Medical Inspector.....	1,000	Feb. 1, 1904	Feb. 1, 1904

RETURN A (2)—Of Officers and Employees of the Department of Indian Affairs on July 1, 1904.

OUTSIDE SERVICE.

ONTARIO.

Name.	Office.	Annual Salary, &c.	Address.	Bands or Reserves in Agency.
		$ cts.		
Adams, Joshua	Indian Land Agent.	—Commission of 5 per cent on collections	Sarnia	Chippewas of Sarnia.
Aylsworth, W. R	Acting Indian Agent	800 00	Belleville	Mohawks of Bay of Quinté, Tyendinaga.
Bonin, Louis N	Indian Agent	800 00	Port Arthur	Ojibbewas of Lake Superior, Western Division.
Cameron, Edwin D	Indian Supt	1,200 00—$140 for travelling expenses and $200 rent	Brantford	Six Nations of Grand River.
Ferguson, W. J. C	Indian Land Agent.	—Commission of 5 per cent on collections	Wiarton	Chippewas of Nawash, Cape Croker.
English, Adam	Indian Agent	500 00	Sarnia	" of Aux Sables, Kettle Point and Sarnia.
Gibson, J. A	Guardian of Islands.	25 00	Mallorytown	Thousand Islands.
Goulette, O. V	"	150 00	Gananoque	"
Hagan, Samuel	Indian Agent	500 00—$60 office rent	Thessalon	Thessalon, Mississagi River and Thessalon Tp.
Hill, David Seymour	Clerk, Indian Office.	900 00	Brantford	
Ironside, Alex. McG	"	720 00	Manitowaning	
Van Loon, W. C	Indian Agent	600 00	Hagersville	Mississaguas of the Credit.
Maclean, William Brown	Indian Supt	900 00—Commission of 5 per cent on collections; $60 office rent	Parry Sound	Parry Island, Dokis, Henvey Inlet, Nipissing, Shawanaga, Temagaming and Watha (or Gibson).
McDonald, Alex. R	Indian Agent	500 00	Duart	Moravians of the Thames.
McDougall, W. J	"	500 00	Wallaceburg	Chippewas and Pottawattamies of Walpole Island.
McFarlane, William	"	325 00	Keene	Mississaguas of Mud and Rice Lakes.
McGibbon, Charles	"	500 00	Penetanguishene	Chippewas of Beausoleil, Christian Island.
McIver, John	"	500 00	McIver	" Nawash, Cape Croker.
McPhee, Duncan J	"	400 00	Atherley	" Rama.
Nichols, W. L	"	825 00—With $154.50 a year for office rent and fuel	Sault Ste. Marie	Batchawana, Big Head or Michipicoten and Garden
Mullin, M	"	60 00	Killaloe	Algonquins of Golden Lake. [River.
Sims, C. L. D	"	1,000 00	Manitowaning	Sucker Creek, Sheguiandah, South Bay, Maganettawan, Point Grondin, Tahgaiwinini, Whitefish River, Whitefish Lake and unceded portion of Manitoulin Island.
Scoffield, John	"	500 00	Chippawa Hill	Chippewas of Saugeen.
Sutherland, S	"	600 00	Delaware	" Munsees and Oneidas of the Thames.
Thackeray, John	"	325 00	Roseneath	Mississaguas of Alnwick.

Cockburn, G. P.	"	300 00	Sturgeon Falls	Nipissing.
Thorburn, R.	"	600 00	Gore Bay	Chippewas of Cockburn Island, Sheshegwaning, Obidgewong and West Bay.
Williams, Albert W.	"	100 00	Port Perry	Mississaguas of Scugog.
Yates, John	"	350 00	Virginia	Chippewas of Snake and Georgina Islands.
Arthur, R. H., M.D.	Medical Officers	600 00—Paid by Bands and appro.		Whitefish Lake, Serpent River and Spanish River Indians.
Baxter, J., M.D.	"	200 00		Thessalon River.
Bedard, E., M.D.	"	200 00—Voted by Parliament.	Mattawa	Algonquin Indians.
Bowman, George, M.D.	"	200 00		Chippewas of Beausoleil.
Carruthers, John, M.D.	"	600 00		Indians on Manitoulin Island.
Channonhouse, J., M.D.	"	200 00—Paid by Vote	Eganville	Golden Lake Band.
Hay, W. W., M.D.	"	500 00—Paid by Band		Indians on Walpole Island.
Hayden, E. W., M.D.	"	275 00 "		Mississaguas of Alnwick.
Holmes, C. U., M.D.	"	2,850 00 "	Ohsweken	Six Nations.
Hough, H. A., M.D.	"	500 00 "		Chippewas of Nawash.
Johnston, J., M.D.	"	250 00 "		Indians on Manitoulin Island.
McCaig, A.S., M.D.	"	500 00 "		Garden River and Batchawana.
McDonald, R., M.D.	"	350 00 "		Mississaguas of the Credit.
Mitchell, F. H., M.D.	"	300 00—Voted by Parliament.		Oneidas of the Thames.
McGrady, J., M.D.	"	125 00—Paid by Band and Vote		Fort William.
McIntosh, J. W., M.D.	"	1,000 00 "		Indians on Manitoulin Island.
McLean, John, M.D.	"	150 00 " and appro.		Chippewas of Rama.
McPhail, D. P., M.D.	"	300 00 "		Moravians of the Thames.
James, J. F., M.D.	"	260 00—Band, $200; $60 voted by Parliament.		Chippewas and Munsees of the Thames.
Moore, John, M.D.	"	250 00—Paid by Band		Mohawks of the Bay of Quinté.
Pringle, H. H., M.D.	"	150 00 "		Chippewas of Snake Island.
Passmore, W. J., M.D.	"	250 00 "		Mohawks of the Bay of Quinté.
Proctor, E. L., M.D.	"	37 50 "		Mississaguas of Scugog.
Shaw, J. M,, M.D.	"	150 00 "		Mississaguas of Rice Lake.
Williams, R. W., M.D.	"	300 00 "		Chippewas of Saugeen.
Merrill, J. W., M.D.	"	100 00—Voted by Parliament.		Indians between Chapleau and Pogamising.
Creegan, Rev. A. H.	Missionary (C.E.)	500 00—Paid by Band.	Deseronto	Mohawks of the Bay of Quinté.
Sims, H. S.	Constable	168 00 "		Serpent River and Spanish River.

QUEBEC.

Bastien, Antoine O.	Indian Agent	425 00	Jeune Lorette	Hurons of Lorette; Quarante Arpents and Rocmont reserves.
Beaulieu, E.	"	150 00—Commission of 5 p.c.	Cacouna	Amalecites of Cacouna.
Blain, Jean	"	600 00—$60 for office rent	Montreal	Iroquois of Caughnawaga.
Burwash, Adam	"	200 00	N. Timiskaming	Lake Timiskaming.
Comire. A. O., M.D.	"	200 00	St. François du Lac	Abenakis of St. François du Lac.
Desilets, Chas. O. H., M.D.	"	100 00	Becancour	" Becancour.
Gagné, Rev. Jacob	"	100 00	Maria	Micmacs of Maria.
Gagnon, Adolphe	"	400 00	Bersimis	Lower St. Lawrence.

RETURN A (2)—Of Officers and Employees of the Department of Indian Affairs on July 1, 1904.

OUTSIDE SERVICE.

QUEBEC—*Concluded.*

Name.	Office.	Annual Salary, &c.	Address.	Bands or Reserves in Agency.
		$ cts.		
Long, George	Indian Agent	50 00—Commission of 10 p.c. on land rent and 2½ p.c. on distributions	St. Regis	Iroquois of St. Regis.
McCaffrey, Wm. J	"	600 00	River Desert	River Desert band, Maniwaki reserve.
Marcoux, A	"	400 00	Pointe Bleue	Montagnais of Lake St. John.
Scott, W. D. B	"	400 00	Mingan	Indians of Lower St. Lawrence.
Perillard, Joseph	"	200 00	Oka	Lake of Two Mountains.
Pitre, Jeremie	"	200 00	Point à la Garde	Micmacs of Restigouche.
McCartney, F. W., M.D	Medical Officer	80 00—Paid by Quebec Fund		Micmacs of Gaspé.
Mulligan, E. A., M.D	"	200 00— " Band		River Desert band, Maniwaki reserve.
Constantin, J., M.D	"	500 00	Pointe Bleue	Pointe Bleue reserve.
Claveau, E. A., M.D	"	200 00	Chicoutimi	Chicoutimi and vicinity.
Pelletier, J. A., M.D	"	50 00	St. Urbain	St. Urbian, Charlevoix Co.
Bourget, Rev. P	Missionary (R.C.)	125 00—Also $25 for fuel	St. Regis	Iroquois of St. Regis.
De Gonzague, Rev Jos	"	235 00	Pierreville	Abenakis of St. Francis.
Forbes, Rev. G	"	100 00	Caughnawaga	Iroquois of Caughnawaga.
Giroux, Rev. G	"	225 96	Lorette	Hurons of Lorette.

NEW BRUNSWICK.

Carter, Wm. D	Indian Agent	500 00	Richibucto	Eel River, Restigouche Co.; Bathurst, St. Peter's Island and Pockmouche, Gloucester Co.: Tabusintac, Burnt Church, Eel Ground, Red Bank, Indian Point, Big Hole and Renous, Northumberland Co.: Big Cove, Indian Island and Buctouche, Kent Co.; Shediac and Fort Folly, Westmorland Co.
Farrell, James	"	500 00—Allowed $50 for office rent	Fredericton	Tobique, Victoria Co.: Edmundston, Madawaska Co.; Kingsclear, St. Mary's, York Co.; Woodstock, Carleton Co.; Oromocto, Sunbury Co.
Benson, J. S., M.D	Medical Officer	100 00	Chatham	Northumberland Co., Burnt Church reserve.
Desmond, J. F., M.D	"	200 00	Newcastle	" Red Bank and Eel Ground reserves.
Duncan, G. M., M.D	"	100 00	Bathurst Village	Gloucester Co., Bathurst reserve.

Ferguson, A. G., M.D	"	50 00	Dalhousie	Restigouche Co., Eel River reserve.
Landry, D. V., M.D	"	40 00	Buctouche	Buctouche reserve, Kent Co.
Leger, J. A., M.D	"	200 00	Shediac	Westmorland Co.
Earle, R. W. L., M.D	"	300 00	Perth Centre	Tobique reserve.
McAllister, D. H., M.D	"	200 00	Sussex	King's Co.
McGrath, R. H., M.D	"	150 00	Fredericton	
McWilliam, L. J., M.D	"	175 00	Rexton	Kent Co., Big Cove and Indian Island reserves.
Ross, J. D., M.D	"	200 00	Moncton	Westmorland Co.
Sprague, T. F., M.D	"	100 00	Woodstock	
Weaver, W. J., M.D	"	100 00	Fredericton	
Bannon, Rev. E. J	Missionary (R.C.)	100 00	Richibucto	Kent Co., Big Cove reserve.
D'Amour, Rev. L. C	"	40 00	Edmundston	
Morrisey, Rev. W	"	100 00	Bartibog Bridge	Northumberland Co., Burnt Church reserve.
O'Keefe, Rev. M. A	"	100 00	Tobique	
Clare, A	Constable	20 00	Rexton	Kent Co., Big Cove reserve.
Alexander, Dominick	"	24 00	Newcastle	Northumberland Co., Eel Ground reserve.
Swasson, Joseph	"	24 00	Church Point	" Burnt Church reserve.
Perley, Peter	Caretaker of church	50 00	Tobique	

NOVA SCOTIA.

Beckwith, Chas. E	Indian Agent	50 00	Steam Mills	Micmacs of King's County.
Cameron, Rev. Angus	"	75 00	Christmas Island	" Cape Breton County.
Fraser, Rev. John	"	100 00	St. Peter's	" Richmond Co., Chapel Island reserve.
Harlow, Charles	"	100 00	Caledonia	" Lunenburg and Queen's Counties; Bridgewater, New Germany, Chester, Mahone Bay and Lunenburg.
Irwin, R. G	"	50 00	Shelburne	" Shelburne County.
Lacy, John	"	50 00	Annapolis	" Annapolis County; Maitland and Milford reserve.
McIntyre, D. K., M.D	"	100 00	Sydney, C.B	Cape Breton County; Cariboo Marsh, Sydney reserve, and North Sydney.
Macdonald, Arch. J	"	100 00	Baddeck	Micmacs of Victoria County.
McDonald, John R	"	100 00	Heatherton	" Antigonish and Guysborough Counties; Afton, Pomquette Forks and Summerside reserves.
McLeod, Rev. John D	"	100 00	Eureka	" Pictou County; Indian Cove reserve.
MacPherson, Rev. Donald	"	100 00	Glendale	" Inverness County; Malagawatch and Whycocomagh reserves.
McManus, Rev. C. E	"	50 00	Sheet Harbour	" Halifax County.
Purdy, J. H	"	50 00	Bear River	" Digby County; Indian Hill reserve.
Rand, Fred. A., M.D	"	50 00	Parrsboro'	" Cumberland County; Franklin Manor reserve (Halfway river).
" "	Medical Officer	200 00	"	" " " " " "
Smith Thos. B	Indian Agent	50 00	Truro	" Colchester County; Millbrook reserve.
Wallace, Alonzo	"	50 00	Shubenacadie	" Hants County; Indian Brook reserve.
Whalen, W. H	"	50 00	Yarmouth	" Yarmouth County.

RETURN A (2)—Of Officers and Employees of the Department of Indian Affairs on July 1, 1904.

OUTSIDE SERVICE.

NOVA SCOTIA—*Concluded*

Name.	Office.	Annual Salary, &c.	Address.	Bands or Reserves in Agency.
		$ cts.		
Bissett, C. P., M.D.	Medical Officer	125 00	St. Peter's	Richmond County; Salmon River reserve.
Jacques, H., M.D.	"	50 00	Canning	King's County.
Morse, G. R., M.D.	"	50 00	Chester	Lunenburg County, East.
Macauley, J. A., M.D.	"	75 00		Inverness County, Malagawatch reserve.
MacDonald, Hugh N., M.D.	"	75 00	Whycocomagh	" Whycocomagh reserve.
McDonald, D., M.D.	"	325 00	Baddeck	Victoria County.
McIntyre, D. K., M.D.	"	250 00	Sydney	Cape Breton County.
McDonald, W. H., M.D.	"	150 00	Antigonish	Antigonish County.
McLean, E. D., M.D.	"	150 00	Shubenacadie	Hants County; Indian Brook reserve.
McMillan, J., M.D.	"	75 00	Pictou	Pictou County.
Marsh, H. A., M.D.	"	75 00	Bridgewater	Lunenburg County, West.
Withers, Russell, M.D.	"	50 00	Annapolis	Annapolis County.
Yorston, F. S., M.D.	"	150 00	Truro	Colchester County, Millbrook reserve.
Black, B., M.D.	"	50 00		Hants County.
Smith, J. W., M.D.	"	100 00	Liverpool	Queen's County.
Lovitt, L. J., M.D.	"	250 00	Bear River	Digby County.
Elderkin, E. J., M.D.	"	100 00	Weymouth	" "

PRINCE EDWARD ISLAND.

Arsenault, John O.	Indian Superintend't	300 00	Higgins Road	Lennox Island reserve, Richmond Bay; Morell reserve, King's County.

BRITISH COLUMBIA.

Vowell, Arthur W.	Indian Supt. and Reserve Com. for B.C.	3,200 00	Victoria	
MacLaughlin, W.	Senior Clerk	1,800 00	"	
Stevens, W. A.	Clerk	1,200 00	"	
Dalby, H. G.	"	720 00	"	
McLachlan, D.	Messenger	600 00	"	
Bell, Ewen	Indian Agent	1,200 00	Clinton	Williams Lake agency.
DeBeck, G. W.	"	1,200 00	Alert Bay	Kwawkewlth "

Galbraith, Robert L. T.	"	1,200 00	Fort Steele	Kootenay "
Neill, Alan W.	"	1,200 00	Alberni	West Coast "
Irwin, Archibald	"	1,200 00	Savona	Kamloops-Okanagan agency.
Loring, Richard E	"	1,200 00	Hazelton	Babine "
McDonald, R. C	"	1,200 00	New Westminster	Fraser River "
Morrow, G. W.	"	1,800 00	Metlakahtla	Northwest Coast "
Robertson, W. R	"	1,200 00	Quamichan	Cowichan "
Sanson, G., M.D.	"	420 00	Ashcroft	Kamloops "
Rolston, P. W., M.D.	"	400 00	Cowichan	Cowichan "
Drysdale, W. F., M.D.	"	500 00	Nanaimo	" "
Millard, H. P., M.D.	"	240 00	Comox	" "
Large, R. W., M.D.	"	120 00	Bella Bella	Northwest Coast "
Kergin, W. T., M.D.	"	360 00	Port Simpson	" "
Jones, O. M., M.D.	"	500 00	Victoria	Indians generally.
Wilson, T. A., M.D	"	360 00	Port Essington	"
McLean, Charles, M.D.	"	650 00	Ucluelet	West Coast agency.
Ross, Stuart A., M.D.	"	420 00	Alberni	" "
Watt, Hugh, M.D	"	360 00	Fort Steele	Kootenay "
Wrinch, H. C., M.D	"	300 00	Hazelton	Babine "
Clarke, S., M.D	"	480 00	Lillooet	Williams Lake "
Morgan, A. D., M.D.	"	300 00	Quesnel	" "
Mostyn-Hoops, S. E., M.D.	"	700 00	150 Mile House	" "
Keller, H. L. A., M.D.	"	300 00	Kilowna	Kamloops "
Williams, G., M.D.	"	300 00	Vernon	" "
White, R. B., M.D.	"	420 00	Fairview	" "
Wade, M. S., M.D.	"	780 00	Kamloops	" "
Offerhans, E. J., M.D.	"	210 00	Spallumcheen	" "
Tutill, G. W., M.D.	"	480 00	Nicola	" "
Bryden-Jack, W. D., M.D.	"	1,200 00	Vancouver	Fraser "
Elliott, C. A., M.D.	"	500 00	Harrison	" "
Drs. Drew & Hall	"	1,200 00	New Westminster	" "
Henderson, J. C., M.D.	"	300 00	"	" "
Whillans, H. A., M.D.	"	120 00	Hedley City	Kamloops "

MANITOBA, KEEWATIN AND NORTHWEST TERRITORIES.

	INDIAN COMMISSIONER'S OFFICE.			
Laird, Hon. David	Indian Commissioner	3,200 00	Winnipeg, Man.	
McKenna, J. A. J	Asst. Indian Comm'r and Chief Inspect.	2,600 00	" "	
Lash, J. B.	Secy. to Commiss'r.	1,900 00	" "	
Reid, J. Lestock, Sr.	Surveyor in charge of Indian reserve surveys in N. W. T., Manitoba, Keewatin and part of Ontario	1,800 00	"	

RETURN A (2)—Of Officers and Employees of the Department of Indian Affairs on July 1, 1904.

OUTSIDE SERVICE.

MANITOBA, KEEWATIN AND NORTHWEST TERRITORIES—*Continued.*

Name.	Office.	Annual Salary, &c.	Address.	Bands or Reserves in Agency.
	INDIAN COMMISSIONER'S OFFICE.	$ cts.		
Betournay, Geo. A., M.A.	Clerk	1,250 00	Winnipeg, Man	
Jean, G. E.	"	1,100 00	"	
Richardson, H.	"	1,000 00	"	
Robson, E.	Stenographer and Typewriter	660 00	"	
Gordon, M.	Typewriter	480 00	"	
Ivey, W.	Clerk	360 00	"	
Fewtrell, E. L.	Caretaker	144 00	"	
	TREATY NO. 8.			
Conroy, H. A.	Inspector	2,000 00		
	MANITOBA SUPERINTENDENCY.			
Jackson, S. J.	Inspector of Indian agencies and reserves	2,000 00	Stonewall, Man	Clandeboye, Berens River, Rat Portage, Savanne and Fort Frances agencies.
Marlatt, Samuel R.	Inspector of Indian agencies and reserves	2,000 00	Portage la Prairie, Man	Portage la Prairie, Manitowapah, the Pas and Birtle agencies.
Garrioch, W. H.	Interpreter	360 00	" "	
Campbell, M.	Farmer	400 00	Swan Lake, Man.	
Ginn, J. C.	"	400 00	Dominion City, Man.	
Watson, Robt. W.	Caretaker	40 00	Portage la Prairie, Man	
	TREATY NO. 2.			
Swinford, S.	Indian Agent	1,200 00	Portage la Prairie, Man	Manitowapah agency: Sandy Bay. Lake Manitoba: Ebb and Flow Lake, Fairford, Sandy Bay (Treaty No. 2), Lake St. Martin, Crane River, Waterhen River and Pine Creek reserves.

Tucker, Geo	Issuer	40 00	Indian Ford, Man	
	TREATY No. 3			
Wright, J. P	Indian Agent	1,200 00	Fort Frances, Ont	Fort Frances agency: Hungry Hall, Long Sault, Manitou, Little Forks, Couchiching, Stangecoming, Niacatchewenin, Nickickcousemenecanning, Seine River and Lac la Croix
McKenzie, R. S	Indian Agent	1,000 00	Rat Portage, Ont	Rat Portage and Savanne agencies.
	TREATY No. 5.			
Courtney, Joseph	Indian Agent	1,000 00	The Pas, Sask	The Pas agency: Grand Rapids (Saskatchewan River), Chemawawin, Moose Lake, the Pas, Pas Mountain, Cumberland.
Gilmour, Rev. Neil	Indian Agent	1,000 00	Norway House, Man	Norway House Agency.
Semmens, Rev. John	Indian Agent	1,000 00	Selkirk, Man	Clandeboye agency: St. Peter's, Brokenhead, Fort Alexander.
	NORTHWEST SUPERINTENDENCY.			
Graham, W. M	Inspector of Indian agencies and reserves	1,800 00	Qu'Appelle	Pelly, Moose Mountain, Crooked Lake, Assiniboine Qu'Appelle and Touchwood agencies.
Markle, J. A	Inspector of Indian agencies and reserves	1,800 00	Calgary, Alta	Edmonton, Hobbema, Stony, Sarcee, Blackfoot, Blood and Peigan agencies.
Chisholm, Wm. J	Inspector of Indian agencies and reserves	2,000 00	Prince Albert, Sask	Duck Lake, Carlton, Battleford, Onion Lake, Saddle Lake agencies, and White Cap Sioux, Montreal Lake and Lac la Ronge reserves.
Wilkinson, A. J	Teamster and Interpreter	360 00	"	
	Assiniboine Agency.			
Aspin, Thos. W	Indian Agent	900 00	Sintaluta, Assa	Assiniboine reserve.
Baker, A. T	Teamster	300 00	"	
	Battleford Agency.			
Day, J. P. G	Indian Agent	1,000 00	Battleford, Sask	Red Pheasant's, Stony, Sweet Grass, Poundmaker's, Little Pine's, Moosomin's and Thunderchild's reserves.
Johnson, C. J	Clerk	720 00	"	
Nolan, A	Farmer	480 00	"	
Sayers, Jos	"	480 00	"	
L'Heureux, M	"	480 00	"	
Jefferson, R	"	480 00	"	
Desjardin, S	T'mster & Interpreter	360 00	"	
Macfarlane, B	Blacksmith	300 00		

RETURN A (2)—Of Officers and Employees of the Department of Indian Affairs on July 1, 1904.

OUTSIDE SERVICE.

MANITOBA, KEEWATIN AND NORTHWEST TERRITORIES—*Continued.*

NORTHWEST SUPERINTENDENCY—*Continued.*

Name.	Office.	Annual Salary, &c.	Address.	Bands or Reserve in Agency.
	Birtle Agency.	$ cts.		
Wheatley, G. H.	Indian Agent	1,200 00	Birtle, Man	Birdtail, Oak River, Oak Lake, Turtle Mountain, Keeseekoowenin, Waywayseecappo, Valley River. Gambler's and Rolling River.
Dickenson, S. M.	Clerk	800 00	"	
Baker, H.	Teamster	360 00	"	
Yeomans, E. H.	Farmer	600 00	"	
	Blackfoot Agency.			
Sibbald, H. E.	Indian Agent	1,000 00	Gleichen, Alta	Blackfoot Indians.
James, W. H.	Clerk and Issuer	660 00	"	
Cosgrave, W. S.	Farmer	600 00	"	
Jones, A. E.	"	540 00	"	
Indian	Teamster	300 00	"	
	Blood Agency.			
Wilson, R. N.	Indian Agent	1,200 00	Macleod, Alta	Blood Indians.
Jowett, J. W.	Clerk	900 00	"	
McDonald, R. C.	Farmer	600 00	"	
Damon, W.	"	600 00	"	
Webb, J. A.	"	480 00	"	
Rhodes, F.	Issuer	540 00	"	
Mills, D.	Interpreter	420 00	"	
Indian	Scout	120 00	"	
"	"	120 00	"	
Sister St. Eusébe	Hospital Matron	180 00	"	
" Brannigan	" Nurse	120 00	"	
" Girard	" "	120 00	"	
	Carleton Agency.			
Fisher, Chas.	Indian Agent	1,000 00	Mistawasis, Sask	Wm. Twatt's, Petequakey's Mistawasis, Ahtakakakoop's, Kapahawekenum's, Keneemotayoo's, Pelican Lake and Wahspaton Sioux reserves.
Jackson, T. E.	Clerk	600 00	"	
McKenzie, John	Miller	600 00	"	

Savard, Jos.	Farmer	480 00	"	
Anderson, P	"	480 00	"	
Tucker, W. R.	Overseer	240 00	Saskatoon	White Cap Sioux reserve.
Villebrun, P.	"	180 00	Montreal Lake	Meadow Lake.
Pratt, Rupert	Interpreter	420 00	Mistawasis, Sask	
Dreaver, J., sr	Farmer	480 00	"	Big River reserve.
Settee, J. R	Overseer	60 00	"	Montreal Lake.
Dreaver, John	Labourer	360 00	"	Mistawasis.
	Crooked Lake Agency.			
Sutherland, J. A	Miller & Blacksmith.	600 00	Broadview, Assa	Ochapowace's Kakewistahaw's, Cowessess and Sakimay's reserves.
Pollock, Isaac	Farmer	480 00	"	
Hourie, Peter,	"	480 00	"	
Cameron, Henry	Interpreter	300 00	"	
	Duck Lake Agency.			
Macarthur, Jas	Indian Agent	1,000 00	Duck Lake, Sask	One Arrow, Okemassis, Beardy's Checastapasin's, John Smith's, James Smith's and Cumberland reserves.
Price, Jos. H	Clerk and Farmer	600 00	"	
Marion, Lewis	Farmer	480 00	"	
Campbell, A	"	480 00	"	John Smith's.
Demarais, J. P	Interpreter	300 00	"	
Adams, Horace	Farmer	480 00	"	Jas. Smith's.
	Edmonton Agency.			
Gibbons, James	Indian Agent	1,000 00	Edmonton, Alta	Enoch's, Alexander's, Joseph's, White Whale Lake and Paul's reserves.
Black, W.	Clerk	600 00	"	
Bard, D	Farmer	480 00	"	
Foley, John	Interpreter	360 00	"	
Pattison, A. E	Farmer	480 00	"	
	Hobbema Agency.			
Grant, Wm. S	Indian Agent	1,000 00	Hollbrook, Alta	Samson's, Ermineskin's and Louis Bull's bands.
Hollies, J	Clerk	600 00	"	
Chandler, E. E	Farmer	480 00	"	
Lucas, T. W	"	480 00	"	
Blanc, H	T'mster & Interpreter	360 00	"	
Indian	Miller	120 00	"	
"	Mail Carrier	120 00	"	
Carson, C. F.	Blacksmith	480 00	"	
	Moose Mountain Agency.			
Murison, W	Indian Agent	900 00	Carlyle, Assa	Pheasant Rump's, Striped Blanket's and White Bear's reserves.
Jack, Jas	Labourer	300 00	"	

RETURN A (2)—Of Officers and Employees of the Department of Indian Affairs on July 1, 1904.

OUTSIDE SERVICE.

MANITOBA, KEEWATIN AND NORTHWEST TERRITORIES.—*Continued.*

NORTHWEST SUPERINTENDENCY.—*Continued.*

Name.	Office.	Annual Salary, &c.	Address.	Bands or Reserves in Agency.
	Onion Lake Agency.	$ cts.		
Sibbald, W.	Indian Agent	900 00	Onion Lake, Sask	Seekaskootch and Chipewyan No. 124, reserves.
Dewan, W.	Farmer	400 00	"	
Taylor, Joseph	Interpreter	300 00	"	
	Peigan Agency.			
Gooderham, J. H	Indian Agent	1,000 00	Macleod, Alta	Peigan Indians.
Race, G. H.	Clerk and Issuer	660 00	"	
Clarke, C. H.	Stockman	480 00	"	
Scott, Thomas	Interpreter	300 00	"	
Indian	Scout	120 00	"	
	Pelly Agency.			
Carruthers, H. A	Indian Agent	1,000 00	Coté, Assa	Coté, Key's and Keeseekonse reserves.
Fisher, F.	Interpreter and Clerk	660 00	"	
Brass, John	Labourer	300 00	"	
Rattray, W. S.	Farmer	600 00		
	Qu'Appelle Agency.			
Ashdown, R. L.	Indian Agent	900 00	Qu'Appelle, Assa	Little Black Bear's, Star Blanket's, Okanase, Pee-peekeesis', Piapot's, Muscowpetung's, Pasquah's and Standing Buffalo's reserves.
Tye, A. W.	Clerk	360 00	"	
Ward, Mark	Interpreter	300 00	"	
Peck, G. W.	Herder	360 00	"	
Davidson, W. F	Farmer	480 00	"	
Hawes, H	"	480 00	"	
Mills, A. H.	"	600 00	"	
Hawes, Jas	"	600 00	"	
Gilbey, Geo.	"	480 00		
	Saddle Lake Agency.			
Mann, G. G.	Indian Agent	1,000 00	Saddle Lake, Alta	Saddle Lake, Wahsatanow, Whitefish Lake, Lac la

Tompkins, P	Farmer	600 00	"	Biche, Chipewyan No. 130 and Beaver Lake reserves.
Batty, J	"	480 00	"	
Whitford, S	Interpreter	300 00	"	
Mann, B. E.	Clerk	240 00	"	
	Sarcee Agency.			
McNeill, Alex. J.	Indian Agent	1,100 00	Calgary, Alta	Sarcee reserve.
Hodgson, George	Interpreter	480 00	"	
Indian	Scout	120 00	"	
Godin, Tom.	Assistant Issuer	60 00	"	
Marshall, A	Stockman	600 00		
	Stony Agency.			
Fleetham, T. J.	Indian Agent	1,000 00	Morley, Alta	Stony reserve.
Nicol, H.	Clerk	480 00	"	
McLean, G	Herder	240 00	"	
	Touchwood Hills Agency.			
Martineau, H.	Indian Agent	1,200 00	Kutawa, Assa	Muscowequan's, George Gordon's, Day Star's, Poor Man's, Fishing Lake and Nut Lake reserves.
Stanley, E	Clerk	600 00	"	
Robinson, W. B. H	Farmer	480 00	"	
Pratt, Jos	"	360 00	"	
Hamilton, P. H.	"	480 00	"	
Pratt, Chas. T	Interpreter	300 00	"	
Beatty, R.	Overseer	180 00	Melfort, Sask	Kinistino band.
Finlayson, J. D	Farmer	480 00		
Harrison, J. W	"	480 00		
	Medical Officers.			
Hanson, Thos., M.D	Medical Officer	700 00	Rat Portage, Ont	Rat Portage agency.
Moore, Robert, M.D	"	450 00	Fort Frances, Ont.	Fort Frances "
Steep, J. R.	"	800 00	Winnipeg, Man.	Clandeboye agency; Rupert's Land and St. Bonifiace industrial schools.
Donovan, H. J., M.D	"	480 00	Red Deer, Alta	Red Deer industrial school.
Edwards, O. C., M.D	"	1,800 00	Macleod, Alta	Blood and Peigan reserves.
Fraser, M. S., M.D	"	480 00	Brandon, Man	Brandon industrial school.
Goodwin, R., M.D	"	200 00	Elkhorn, Man	Elkhorn industrial school.
Lafferty, J. D., M.D	"	1,800 00	Calgary, Alta	Blackfoot, Sarcee and Stony agencies, and High River and Calgary industrial schools.
Macadam, S. T., M.D.	"	900 00	Battleford, Sask	Battleford agency and industrial school.
Seymour, M. M., M.D	"	600 00	Fort Qu'Appelle	Qu'Appelle industrial school.
Bird, James R., M.D.	"	600 00	Whitewood, Assa	Crooked Lake agency.
Carthew, E. C., M.D	"	900 00	Qu'Appelle "	File Hills and Touchwood Hills reserves.
Matheson, E., M.D	"	300 00	Onion Lake, Sask	Onion Lake agency.

RETURN A (2)—Of Officers and Employees of the Department of Indian Affairs on July 1, 1904.

OUTSIDE SERVICE.

MANITOBA, KEEWATIN AND NORTHWEST TERRITORIES—*Concluded.*

NORTHWEST SUPERINTENDENCY—*Concluded.*

Name.	Office.	Annual Salary, &c.	Address.	Bands or Reserves in Agency.
	Medical Officers—con	$ cts.		
Labrecque, J. J. A., M.D.	Medical Officer	150 00	Prince Albert, Sask	Emmanuel College.
Graham, J. A., M.D.	"	500 00	Regina, Assa	Regina industrial school.
Kalbfleisch, W. H., M.D.	"	600 00	Balgonie "	Piapot's, Pasquah's and Muscowpetung's reserves.
Bonjou, Victor, M.D.	"	300 00	Sintaluta "	Assiniboine agency.
Reid, J. L., M.D	"	600 00	Prince Albert, Sask	John and James Smith's reserves.
Tyerman, P. D., M.D	"	900 00	" "	Carlton agency.
Harrison, J. D., M.D.	"	750 00	Edmonton, Alta	Edmonton agency.
Hardy, John G., M.D	"	300 00	Carlyle, Assa	Moose Mountain agency.
Bourgeault, V., M.D	"	500 00	Duck Lake, Sask	Boarding school and reserves.
Larose, A., M.D	"	900 00	The Pas, Sask	Pas agency reserves.
Tierney, J. A., M.D	"	200 00	St. Albert, Alta.	St. Albert boarding school.
Drs. Turnbull & McCulloch	"	250 00	Moose Jaw, Assa.	Moose Jaw Sioux.
West, C. H., M.D	"	1,200 00	Lesser Slave Lake.	Treaty 8.

RETURN B.—APPROPRIATION ACCOUNTS.

1903-04.

Indians.	Grant.	Expenditure	Grant not used.	Grant exceeded.
ONTARIO AND QUEBEC.	$ cts.	$ cts.	$ cts.	$ cts.
Relief, seed and medical attendance, Quebec	5,600 00	4,153 17	1,446 83	
" " " Ontario	2,300 00	2,274 79	25 21	
Blankets and clothing, Ontario and Quebec	500 00	498 13	1 87	
Schools, Ontario, Quebec and Maritime Provinces	48,690 00	47,481 59	1,208 41	
Salaries of Chiefs, Cape Croker and Gibson and Agent St. Regis	150 00	150 00	.....	
Payment of Robinson Treaty Annuities	16,806 00	16,642 03	163 97	
Survey of Indian Reserves	1,000 00	727 39	272 61	
Indian Land Management Fund	14,000 00	14,000 00	.....	
Grant for Agricultural Society, Munsees of the Thames	90 00	90 00	.....	
To assist in suppression of liquor traffic among Indians belonging to bands in older provinces which have no fund of their own	500 00	610 55	.....	110 55
Erection of lock-up at St. Regis	500 00	.....	500 00	
General legal expenses	3,500 00	1,198 34	2,301 66	
Repair of roads	2,100 00	592 94	1,507 06	
Squatters' improvements, Doncaster Reserve	11,325 00	11,118 00	207 00	
Drainage, Caughnawaga Reserve	600 00	567 41	32 59	
Contribution on behalf of the Rama Indians towards expenses on roads and bridges in the township of Rama	2,000 00	2,000 00	.....	
	109,661 00	102,104 34	7,667 21	110 55
NOVA SCOTIA.				
Salaries	1,225 00	1,200 00	25 00	
Relief and seed grain	2,700 00	2,807 02	.....	107 02
Medical attendance and medicines	3,700 00	3,694 07	5 93	
Miscellaneous and unforeseen	300 00	223 70	76 30	
To improve sanitary condition of Indian Reserve near Sydney	1,000 00	1,000 00	.....	
Repair of roads	250 00	250 00	.....	
Purchase of lands for Reserves	800 00	800 00	.....	
	9,975 00	9,974 79	107 23	107 02
NEW BRUNSWICK.				
Salaries	1,308 00	1,237 00	71 00	
Relief and seed grain	2,400 00	2,381 54	18 46	
Medical attendance and medicines	3,800 00	3,787 75	12 25	
Miscellaneous and unforeseen	600 00	503 77	96 23	
Damage by fire on the Indian Reserve, Edmundston	100 00	98 00	2 00	
	8,208 00	8,008 06	199 94	
PRINCE EDWARD ISLAND.				
Salaries and travelling expenses	300 00	300 00	.....	
Relief and seed grain	925 00	750 72	174 28	
Medical attendance and medicines	650 00	745 58	.....	95 58
Office and miscellaneous expenses	75 00	31 22	43 78	
	1,950 00	1,827 52	218 06	95 58

APPROPRIATION ACCOUNTS—*Concluded.*

1903-04.

Indians.	Grant.	Expenditure	Grant not used.	Grant exceeded.
	$ cts.	$ cts.	$ cts.	$ cts.
British Columbia.				
Salaries	21,040 00	20,735 82	304 18	
Relief	4,500 00	7,182 47	.....	2,682 47
Seed and implements	1,000 00	416 77	583 23	
Medical attendance and medicines	20,000 00	15,543 44	4,456 56	
Day schools	9,700 00	7,439 66	2,260 34	
Industrial and boarding schools	81,650 00	68,338 40	13,311 60	
Travelling expenses	5,600 00	5,695 43	.....	95 43
Office and miscellaneous	10,620 00	6,833 16	3,786 84	
Surveys and reserve commission	5,000 00	2,257 51	2,742 49	
For launch Kwawkewlth Agency and furnishings	2,500 00	2,153 36	346 64	
To assist hospital at Hazelton	1,000 00	1,000 00	.....	
	162,610 00	137,596 62	27,791 88	2,777 90
General.				
Salaries of Inspectors	3,000 00	3,000 00	.....	
Travelling expenses and clerical assistance for these officers	1,200 00	991 45	208 55	
Printing and stationery, outside service generally (including schools)	6,000 00	4,700 12	1,299 88	
	10,200 00	8,691 57	1,508 43	
Miscellaneous.				
Compensation for price of islands and improvements to be made on islands in the St. Lawrence river	12,000 00	11,000 00	1,000 00	
Manitoba and Northwest Territories.				
Annuities and commutations	144,685 00	140,780 00	3,905 00	
Implements, tools and hardware	9,449 00	9,510 58	.....	61 58
Field and garden seeds	1,217 00	1,216 84	0 16	
Live stock	21,350 00	21,269 55	80 45	
Supplies for working and destitute Indians	193,472 00	186,342 69	7,129 31	
Triennial clothing	5,289 00	4,022 84	1,266 16	
Day, boarding and industrial schools	304,292 00	268,876 71	35,415 29	
Surveys	7,000 00	7,007 03	.....	7 03
Sioux	5,355 00	4,117 51	1,237 49	
Grist and saw-mills	2,262 00	2,300 22	.....	38 22
General expenses	159,291 00	158,654 58	636 42	
	853,662 00	804,098 55	49,670 28	106 83
Yukon District.				
Supplies for destitute Indians	5,000 00	4,651 11	348 89	
Day and boarding schools	5,000 00	2,829 35	2,170 65	
	10,000 00	7,480 46	2,519 54	

INDIAN TRUST FUND.

RETURN C showing transactions in connection with the Fund during the year ended June 30, 1904.

Service.	Debit.	Credit.
	$ cts.	$ cts.
Balance, June 30, 1903		4,408,912 57
Collections on land sales; timber and stone dues; rents, fines and fees		182,580 83
Interest for year ended June 30, 1904, on above balance		176,926 89
Legislative grants to supplement the funds		30,706 06
Outstanding cheques for 1901-02		9 07
Expenditure during the year 1903-04	322,227 61	
Balance, June 30, 1904	4,476,907 81	
	4,799,135 42	4,799,135 42

For further details of the above expenditure from the Indian Trust Fund and the Consolidated Fund, see Part J of the Auditor General's Report.